# Pit and Quarry

*With which is consolidated*

CEMENT-MILL & QUARRY

**June, 1934**



NRA CODE GRAPHIC ARTS INDUSTRY 1934

OCT 25 1934

PLAY *Safe* BY USING

**Williamsport Wire Rope !**

Many things are happening in the development of superior wire rope in our laboratories which should be of great interest to Wire Rope users everywhere—
New, perfected drag line cables—equalized (prestretched) elevator cables—heavy duty shovel ropes—"Form-Set", the newest idea in perfected preformed wire rope, and other ropes for specific use that warrants your investigation when you are again ready for Wire Rope replacements.
Write our engineers for help on any problems you are encountering—They will help you without any obligation.

WILLIAMSPORT WIRE ROPE COMPANY

*Main Office and Works:*
WILLIAMSPORT
PENNA.

*Branch Sales Offices:*
122 So. Michigan Ave.
CHICAGO



*Pages 15-21*

# ROBINS

## CONVEYING AND SCREENING EQUIPMENT

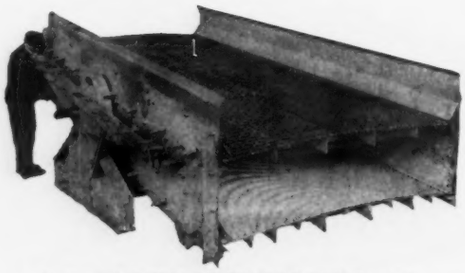
SPECIALISTS FOR 40 YEARS

ROBINS GYREX SCREENS
Bulletin No. 90

ROBINS GYRALOY and SUPER-GYRALOY SCREEN CLOTH
Bulletin No. 89

ROBINS HANDBOOK FOR DESIGNERS OF BELT CONVEYORS
Bulletin No. 82

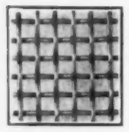
These handbooks will interest you



A 6′ x 14′ GYREX SCREEN FOR SIZING AND DEWATERING PHOSPHATE ROCK

Scalping and screening aggregate and dredged sand and gravel, handling copper ore, phosphate rock, diamond blue ground, gold ore and all heavy materials in various parts of the world and in tonnages up to 500 T.P.H. per screen, the GYREX demonstrates perfected design and highest operating efficiency.

GYRALOY and SUPER-GYRALOY screen cloths are positively the most economical.



SUPER-GYRALOY SCREEN CLOTH

SUPER-GYRALOY resists crystallization better and wears longer than any other known screen surface.

This sheet is your coupon. Check what you want, fill in your address, tear out and mail to Robins Conveying Belt Co., 15 Park Row, New York, N. Y.

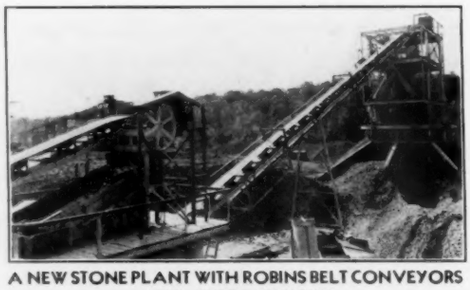
Bulletin 82.... 89.... 90...

Have engineer call...

Company .....

Address .....

Attention .....



A NEW STONE PLANT WITH ROBINS BELT CONVEYORS AND GYREX SCREENS

ROBINS BELT CONVEYORS are complete coordinated units. The rubber belts, idlers, pulleys, gears, chutes and supports all made in our own factories. Correct in design, rugged in construction and exactly suited to the requirements.

## ROBINS CONVEYING BELT COMPANY

NEW YORK
15 Park Row

Boston • Charleston, W. Va. • Cleveland • Detroit
Philadelphia • Pittsburgh • London • Johannesburg
Agents in other principal cities

CHICAGO
Old Colony Bldg.

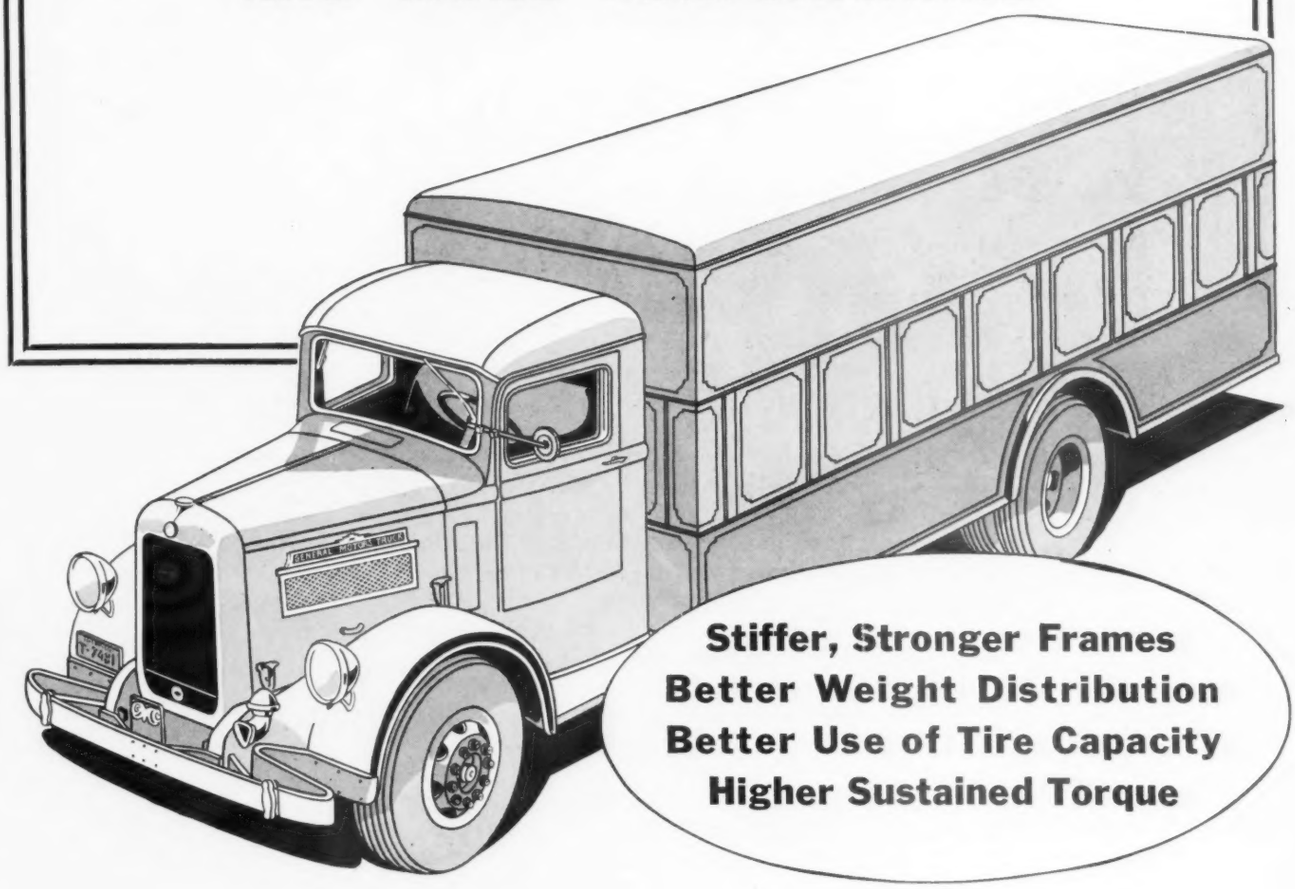
QUALITY

MATERIAL HANDLING ROBINS EQUIPMENT

ECONOMY

# GMC
# HEAVY DUTY TRUCKS

## GIVE YOU MORE *CAPACITY* AND MORE *PERFORMANCE*



**Stiffer, Stronger Frames**
**Better Weight Distribution**
**Better Use of Tire Capacity**
**Higher Sustained Torque**

The most important question to ask yourself, when about to buy a truck, is—"Has it the capacity and performance to do my job *right?*"

GMC Heavy Duty Trucks have. They are truck-built to do a real truck job. Stiff, strong, ruggedly braced frames, with a higher section modulus than in any other truck of same size.

Weight distribution is scientifically correct. More weight on the front axle. Less on the rear. New GMC cab-over-engine models lead in this important feature. New set-back axle models are equally outstanding in this respect. Less variation in individual tire loads.

Axles are heavier—all rear axles, full-floating. Driving members 100% free from all load-carrying stresses. Less wear. Less need for service.

And torque and rim pull! GMC Heavy Duty Trucks lead the field in these two major performance factors. Give you the highest sustained torque, per cubic inch of displacement, of any trucks built! More work-ability at *usable* speeds.

See the new GMC Heavy Duty Trucks at your GMC dealer's, or write the factory for further information. Complete line gives you exactly the truck you need for maximum earning power.

*General Motors Trucks and Trailers—1½-22 Tons*

**GENERAL MOTORS TRUCKS and Trailers**

GENERAL MOTORS TRUCK COMPANY — *Time Payments Available Through Our Own Y. M. A. C.* — PONTIAC, MICHIGAN

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# Pit and Quarry

With which is consolidated
CEMENT-MILL & QUARRY

Volume 26 June, 1934 Number 12

MEMBER AUDIT BUREAU OF CIRCULATIONS

Published on the first of each month for producers and manufacturers of Cement, Crushed Stone, Gypsum, Lime, Sand, Gravel and other nonmetallic minerals. Entered as second-class matter November 28, 1932, at the Postoffice at Chicago, Ill., under the Act of March 3, 1879.



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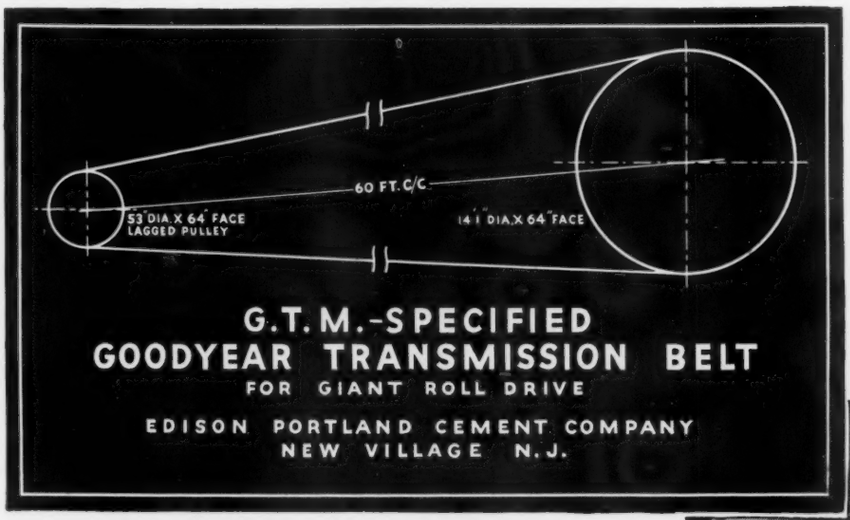
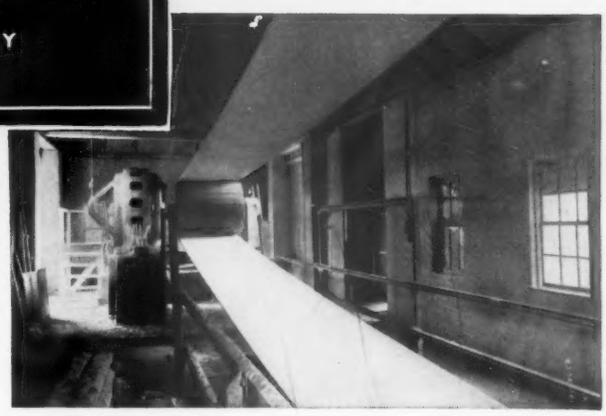
NRA U.S. CODE GRAPHIC ARTS INDUSTRY 1934

# NOT A MINUTE'S TROUBLE IN 12 YEARS




*650 to 850 horsepower loads at 325 R.P.M.*

## GOODYEAR TRANSMISSION BELT NEVER FALTERS ON GIANT ROCK-CRUSHER DRIVE



### Called "remarkable" after 4 years' service in '26, it is still going strong today

### A GTM JOB

HERE is the saga of a belt that should prove eye-opening to anyone vexed with a belt-killing transmission drive.

In 1922 the Edison Portland Cement Company called in the G. T. M.—Goodyear Technical Man—to recommend a belt for the Giant Roll Drive in their crusher plant at New Village, N. J.

This drive operates the great rock crusher that grinds up huge limestone boulders weighing from three to ten tons. The terrific shock and strain of such impacts required a belt with plenty of intestinal fortitude.

#### SPECIFIED BY THE G. T. M.

Thoroughly analyzing these requirements, the G. T. M. specified a 9-ply Goodyear Transmission Belt 147 feet long and 60 inches wide.

In 1926, after handling 650 to 850 horsepower loads continuously for four years, this belt had already given such unusual service that a company official stated: *"Its performance to date is really remarkable—it has never given a moment's trouble!"*

Today, eight years later—12 years after installation—this belt is still in service without ever having had one minute's "time out" for repairs, save cutting to take up slack. And it looks good for several years' more service!

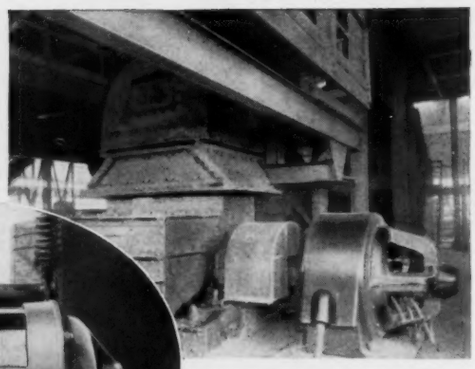
Records like this are common where the G. T. M. has specified belting to fit exacting jobs. Perhaps he could save you money in equipment and operating costs. To get in touch with him, write Goodyear, Akron, Ohio, or Los Angeles, California—or your nearest Goodyear Mechanical Rubber Goods Distributor.

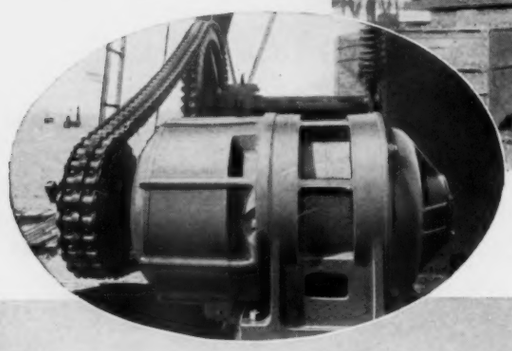
**BELTS • MOLDED GOODS**
**HOSE • PACKING**
MADE BY THE MAKERS OF GOODYEAR TIRES

THE GREATEST NAME IN RUBBER

# GOODYEAR

If you need a dependable low-speed motor that can be connected directly to your kiln or cooler gears, conveyors, car pullers, feeders, etc., use a G-E gear-motor. They are compact low-speed drives that deliver their full-rated power at the output shaft at almost any speed from 13 to 600 rpm.



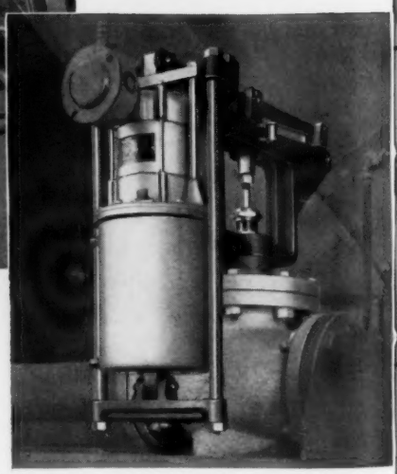


For all motors and control, be sure to see General Electric first. From our complete line, we can supply the RIGHT MOTOR and the RIGHT CONTROL for every drive in the rock products industry. Remember, perfectly matched motors and control promote greater economy

# FOR EVERYTHING ELECTRIC

For cable, too, see G.E. Most of your jobs, especially electric shovels, need tough cable. For this service, G-E Tellurium-compounded cable has proved its worth. We can supply cable of every type, size, and voltage for use about your plant

NRA MEMBER U.S. WE DO OUR PART

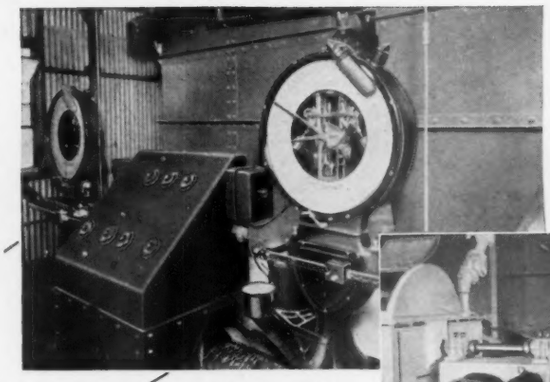


For driving tube mills, use the G-E Super Synchronous motor. Synchronized before its load is started, this motor will accelerate unusually heavy loads smoothly, and synchronize them without excessive demands on the power supply or stress on mechanical equipment

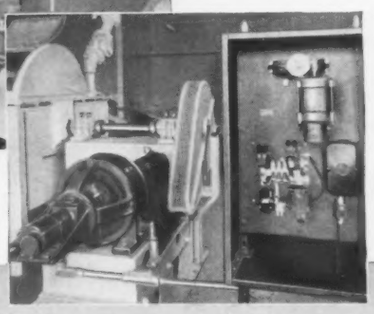
To handle slurry, steam, gas, water, oil, etc., quickly and easily by remote control, use a G-E Thrustor valve—a superior valve operated by a Thrustor. In cement, amesite, or ready-mix plants, they provide the best means of automatically proportioning the raw materials

# G E N E R A L

In modernizing your plant, use G-E shipped-assembled switchgear. Each unit comes completely wired, ready for installation. Consider the saving! G.E. makes a complete line of switchgear and control for your every need



If you want to synchronize two or more drives, such as the kiln with its feeder, a number of conveyors, or other related units, use G-E Selsyn devices. Ask a G-E sales engineer to tell you more about this important modernization tool



Here's a G-E photoelectric relay automatically weighing the ingredients in a ready-mix batching plant. There are dozens of other jobs that "electric eyes" can do with new economy and efficiency. Write for a copy of *G-E Photoelectric Relays*, GEA-1654A

# C SEE GENERAL ELECTRIC

**SEE General Electric first! There you can buy, from a dependable manufacturer, all the electric equipment you need for a modern rock products plant, on one order blank.**

**General Electric can meet every need with dependable equipment, progressive engineering, and prompt, competent service.**

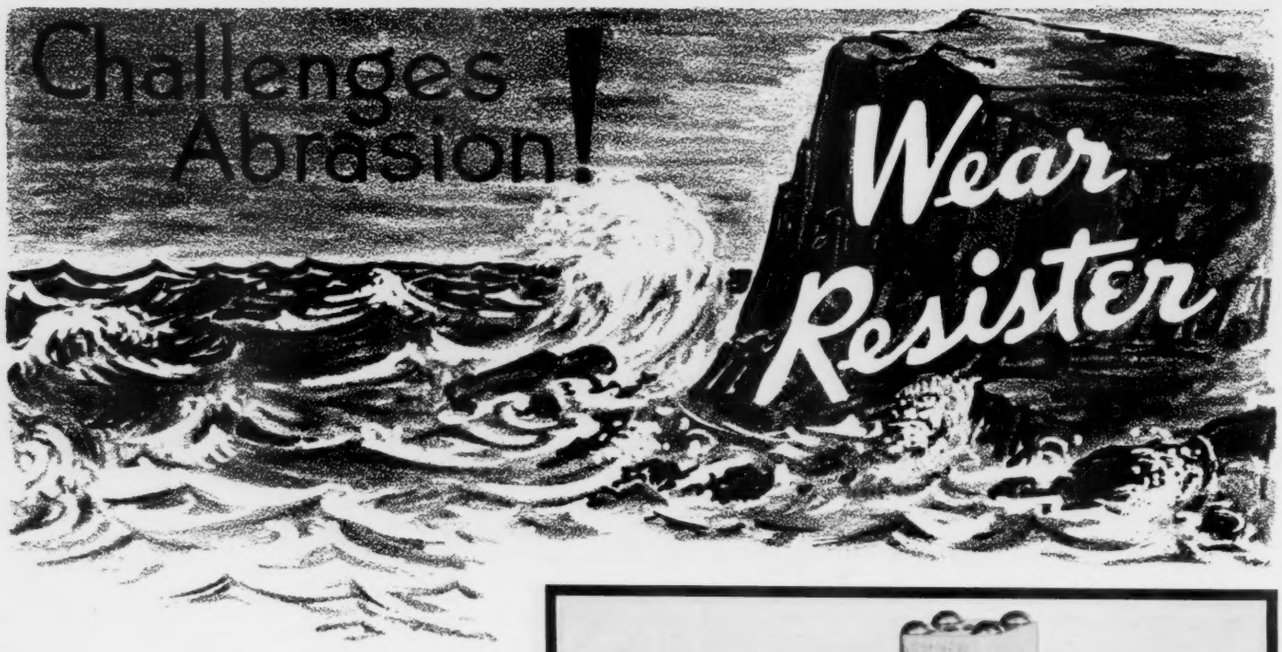
**Not the least of these is service—reliable, matched G-E renewal parts are available for an emergency. Conveniently located service shops and warehouses and reliable G-E sales offices are at your service and are always ready to help you to the most economical solution of your problems.**

**Illustrated on this page are a few of the many time- and money-saving equipments in our extensive rock products line—equipments that will stay on the job, year after year, with G-E reliability. If you would like additional information on any of these items, please write or call the nearest G-E office, or General Electric, Dept. 6B-201, Schenectady, N. Y.**

For rotary cement kilns, coal conveyors, chain-grate stokers—wherever you need an efficient, adjustable-speed drive with good speed regulation—use a BTA motor. With it, you can obtain directly from an a-c. source the most desirable characteristics of a d-c. shunt motor. Send for bulletin GEA-712B

020-1

# E L E C T R I C




IT is not enough to build merely a sturdy dredge pump to meet modern conditions.

Good materials and efficient design avail little, when vital parts are left exposed to the ruthless abrasive wear of cutting sand and grinding gravel.

The problem of protection, once thought unanswerable, has been solved by P. M. Co. engineers with the development of

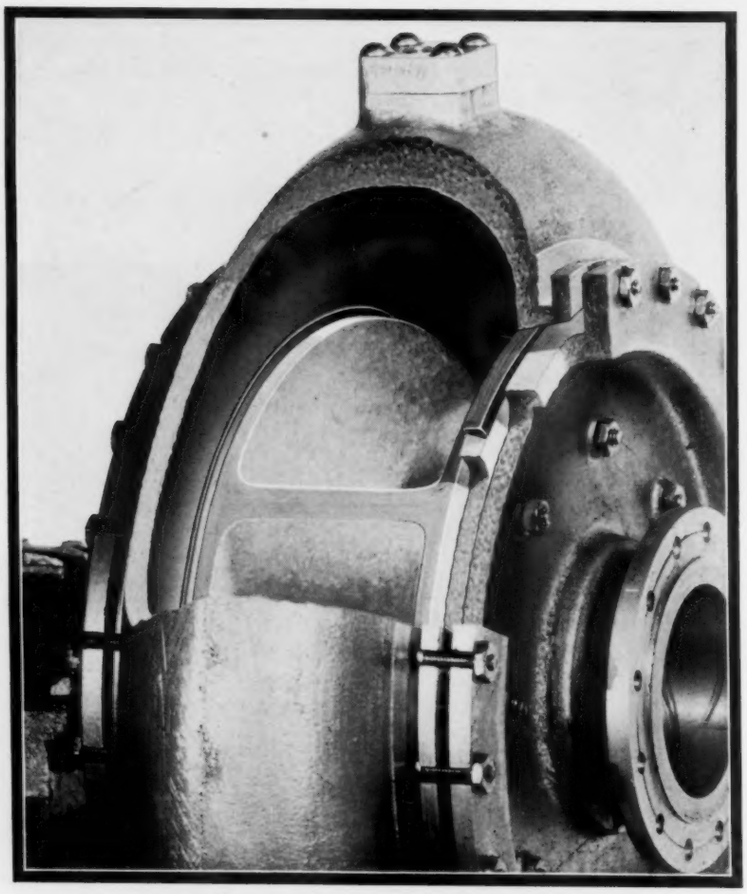
## THE NEW WEAR RESISTER

This key feature of design, coupled with the super-durable construction of Diamond Dredge Pumps, is setting a new standard in pump performance. Installation after installation is proving that the Wear Resister

— prolongs pump life
— checks costly shutdowns
— reduces repair costs
— steps up production

By protecting the pump shell, side plates and liners from wear at vital points, the Wear Resister insures maximum wearability.

**THE NEW WEAR RESISTER IS ADAPTABLE TO YOUR PRESENT INSTALLATION. Write for full information.**



DIAMOND

**The Diamond Dredge Pump is built with Diamond Manganese Steel for all wearing parts, and equipped with the WEAR RESISTER, an exclusive development of Pettibone Mulliken engineers.**

**Patent No. 1947148**

# PETTIBONE MULLIKEN CO.

**P. M. Co. Products include Traveling Chain Cutters, Flap Valves, Nipples, Elbows, Jaw Plates, Crusher Parts, Dippers, Dipper Teeth, Bucket Lips, Sheaves and many other Manganese Steel Equipment Parts.**

**4710 West Division Street**
**CHICAGO Est. 1880 ILLINOIS**

HERE'S THE NEW PLYMOUTH DIESEL WITH AN IMPROVED ONE-PIECE STEEL FRAME. EVERY JOINT'S THOROUGHLY BRACED AND WELDED TOGETHER.

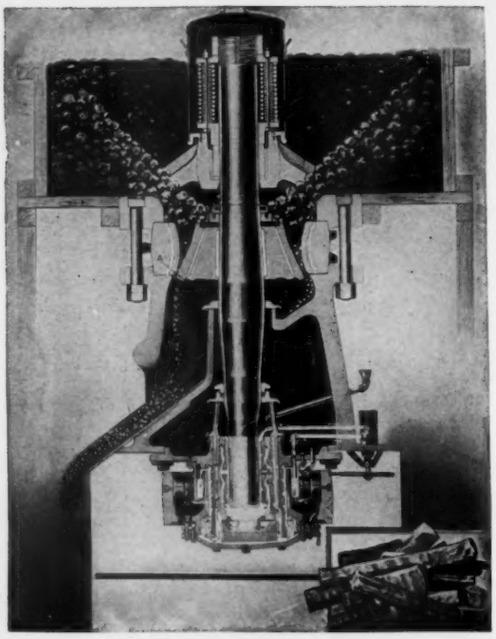
E. W. HEATH, Vice President and General Sales Manager, Plymouth Locomotive Works

Plymouth now offers two new Diesel Locomotives built for low cost haulage and maintenance – sizes: 8 and 12 ton. Its features include a one piece steel frame « a Caterpillar Diesel Engine « a powerful dry-plate clutch « a heavy-duty sliding gear transmission with four speeds forward and reverse « a semi-elliptic cross-equalized spring suspension for smooth operation over rough and uneven tracks at all speeds. « Write for descriptive Bulletin.

# PLYMOUTH

» GASOLINE » » DIESEL »
GAS ELECTRIC DIESEL ELECTRIC
LOCOMOTIVES

PLYMOUTH LOCOMOTIVE WORKS, PLYMOUTH, OHIO, U.S.A.



# Greater tonnage with half the power cost

***Guaranteed!***

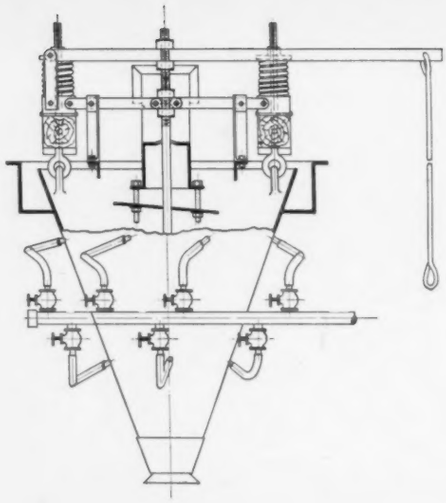
*The Kennedy Ball Bearing* Gearless Gyratory Crusher is guaranteed to produce a greater tonnage than any other crusher of a given size, with half the power per ton of ore. This crusher can be equipped with a synchronous motor in its pulley, or driven by belt from a standard motor.

The Savings Effected with this crusher are astounding:

In cost of Maintenance.....80%
In Power.....The entire cost of crusher and motor in pulley is amortized annually.

Sieving test on glacial gravel crushed at the rate of 18 tons per hour, with No. 19 crusher set to ⅛ in., and using less than 15 hp., follows:

| | |
|---|---|
| Minus ⅜ in | 100% |
| Plus 3 mesh | 21½% |
| Minus 3—Plus 4 | 17% |
| Minus 4—Plus 14 | 36½% |
| Minus 14—Plus 48 | 15% |
| Minus 48—Plus 100 | 4% |
| Minus 100 | 5½% |



# Kennedy Washing Classifier and Dewaterer

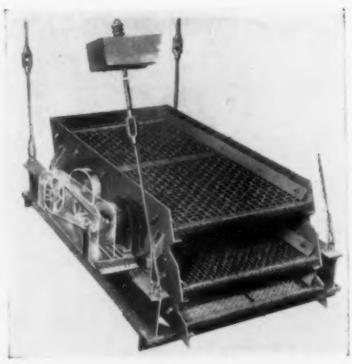
In actual operation coarse gravel sand is discharged from bottom of a relatively small container for concrete sand; colloidal material and fine sand laundered to a relatively larger container, the colloidal material is washed over, and the product is discharged through the bottom for plaster sand; or the colloidal material only may be washed over from the first container.

The containers supported on springs with the adjusting lever enable the operator to regulate washing, classifying, and dewatering.

The moisture content has averaged less than 25%; therefore it is truly a washer, classifier, and dewaterer.

These containers will deal with the closest classification in precious metal milling work.

It is a scientific method and accomplishes results heretofore unknown.



## Kennedy Vibrating Screen

Double Strength
High-Class
Workmanship
and Material

Greatest
Capacity
Guaranteed

No repair parts sold after 4 years in use except screen cloth.

***Write today for our Catalog No. 16-P-634***

## KENNEDY-VAN SAUN MFG. and ENG. CORP.

**Two Park Avenue** **New York, N. Y.**

BRANCH OFFICES:—Chicago: 120 South La Salle St. Birmingham, Ala.: Comer Building. Los Angeles, Calif.: 416 South Spring St. London, England: Bush House. Paris, France: 40 Rue des Mathurins. Johannesburg, S. Africa: 73 Cullinan Bldg. Canadian Agents: The William Kennedy & Sons, Ltd., Owen Sound, Ont. Walkers Limited, Maryborough, Queensland, Australia. New Zealand Agents: Booth, MacDonald & Co., Ltd., Christchurch.

# ONLY

## Brand of WIRE ROPE bears a SILVER STRAND

## . . . THE MARK OF SUPERIOR QUALITY!

As exclusive as the identifying "Silver Strand" is the superior performance and economy of Monitor Silver Strand Wire Rope. Made of the highest quality steel, it is brutally strong, to whip the toughest kind of jobs—while its great abrasion resisting qualities assure far longer life. If you are interested in lower operating costs and greater efficiency—if you want true and proved value—it will pay you to learn in detail what the "Silver Strand" means. Take advantage of the money-saving consultation service offered by our distributors and branch offices.

AMERICAN STEEL & WIRE COMPANY

# MONITOR

## SILVER STRAND WIRE ROPE

1831

1934

AMERICAN STEEL & WIRE COMPANY

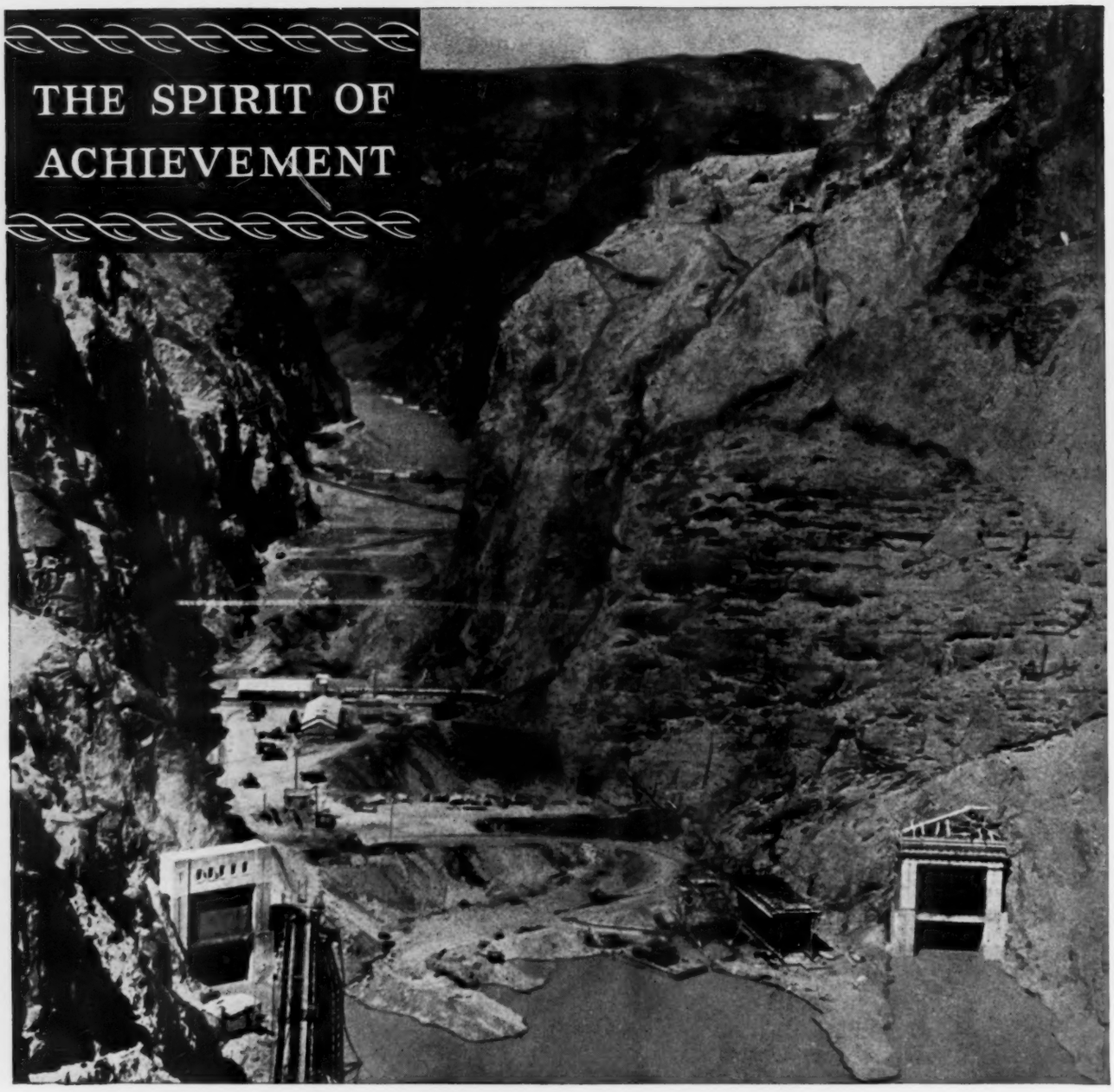
208 South La Salle Street, Chicago
94 Grove Street, Worcester

SUBSIDIARY OF UNITED STATES STEEL CORPORATION
AND ALL PRINCIPAL CITIES

Empire State Building, New York
First National Bank Building, Baltimore

*Pacific Coast Distributors:* Columbia Steel Company, Russ Bldg., San Francisco

*Export Distributors:* United States Steel Products Company, New York




*Thermoid products are engineered with the same spirit of achievement that dams a mighty river.*

The vision of the engineer sees the great dam stretch across the gorge. With the rise of the waters he sees blossoms in the desert. He sees power generated for cities still unborn. It is the same vision of progress that enables Thermoid products to meet the advanced demands of industry.

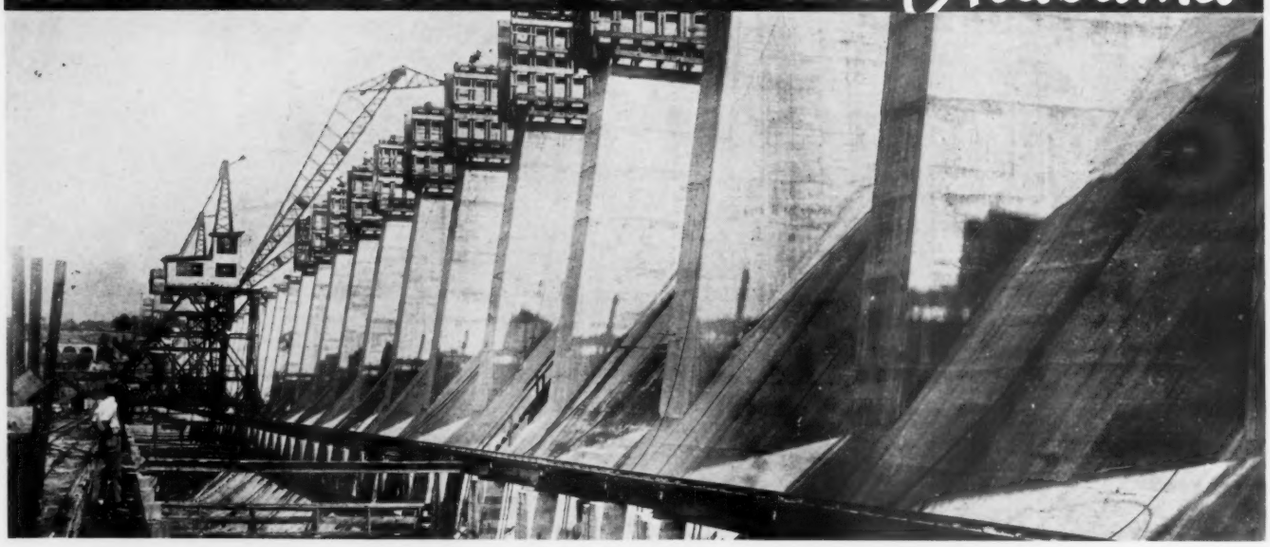
Back of every Thermoid product—beltings, hose, packings—stands a vast experience in the field, an intimate knowledge of the uses of each which permits it to be individually engineered for the job to be accomplished.

Look for the Thermoid label. It is your guarantee of finest quality, your assurance of enduring performance. *Buy by that quality mark!*

**THERMOID RUBBER CO.**
*Factories and Main Offices*
TRENTON, NEW JERSEY

**Thermoid**
**BELTING**
**HOSE AND PACKINGS**

# NEAR MUSCLE SHOALS *Alabama*



# From Jobs like this comes the ideal Rock and Gravel Plant

**That boosts yardage and cuts production costs on aggregates**

***—The Cedar Rapids Straight Line—***

### FOR ROCK

Use the 1536 or 1524 Primary Crusher on a truck with a conveyor feeding into the 936 or 924 straight line Secondary Screening and Crushing Plant.

Ideal set up for Rock Production.

**15x36 Primary Crusher on Truck with Conveyor Used in Conjunction with Plant Below**

### FOR GRAVEL

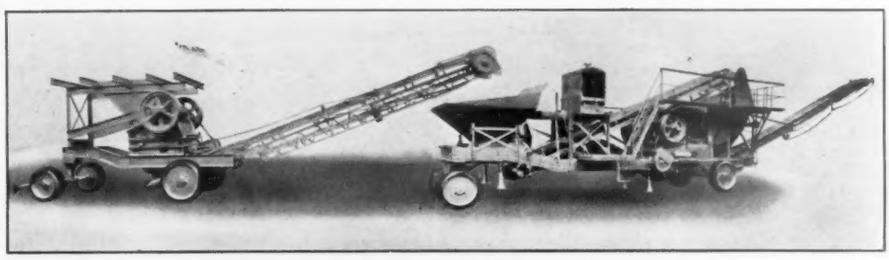
Use the 936 Straight Line Plant(or 924 or 936-336 Tandem) for Gravel Production. This plant is ideal for gravel or rock and it has big capacity, portability, low up-keep, and they are low in price.

**WE HAVE A NEW CATALOG ON THESE PLANTS READY FOR YOU**

A Balanced Plant

1536
936
336

Large Production



**936 Straight Line All Purpose Plant Which Operates as the Secondary Unit with the Primary Crusher Shown Above**

Solid or Pneumatic Tires

3x8 Triple Deck Niagara Vibrator

Sand Eliminator

Shovel or Trap Loading

Gasoline or Diesel Power

A Complete Line of Crushers, Screens, Bins, Washing Plants, Asphalt Plants, Etc.

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## IOWA MANUFACTURING COMPANY

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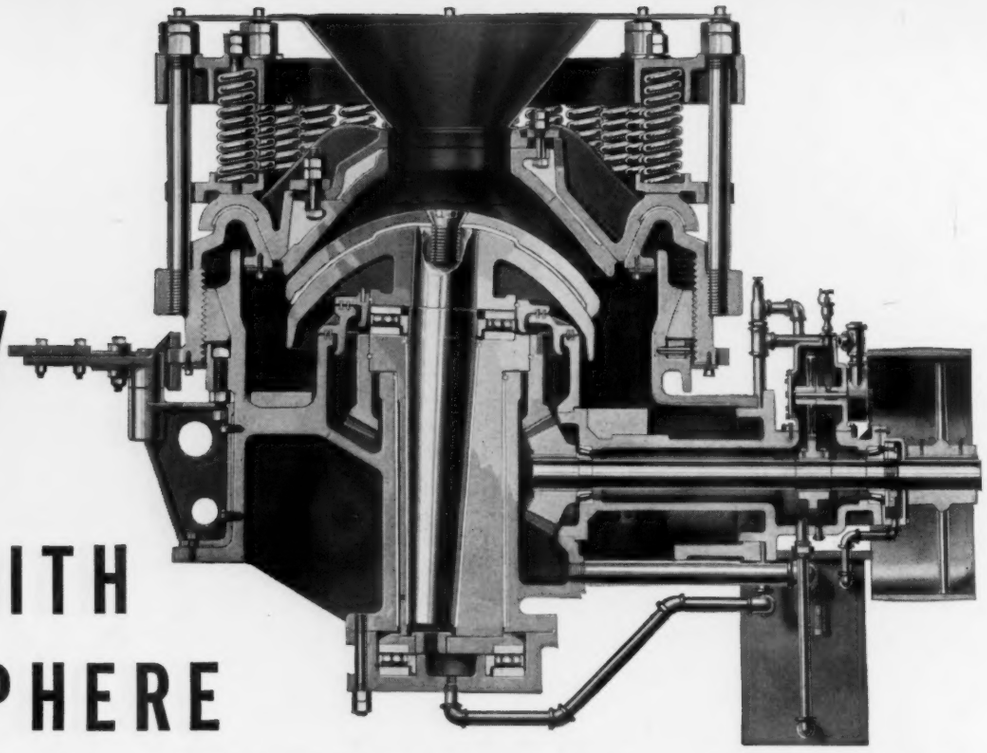

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Here are two identical pieces of rock— A and B Lay A against an anvil, recessed like a cone and crush it with a conical head It breaks on a vertical line, parallel to the axis of the cone; and the result is two fragments, like this— Now lay the other piece B against an anvil, hollowed out to a spherical surface and crush it with a spherical head The piece B breaks (to conform with its spherical background) into four pieces, like this— In one case you make splinters— in the other case you make cubes. Splinters make weak concrete and poor road material—cubes make the kind of aggregate that careful engineers specify. Telsmith Gyrasphere, with its spherical head, not only turns out an excellent cubical product but crushes finer. Get complete details—write for Bulletin Y-15. Y-3

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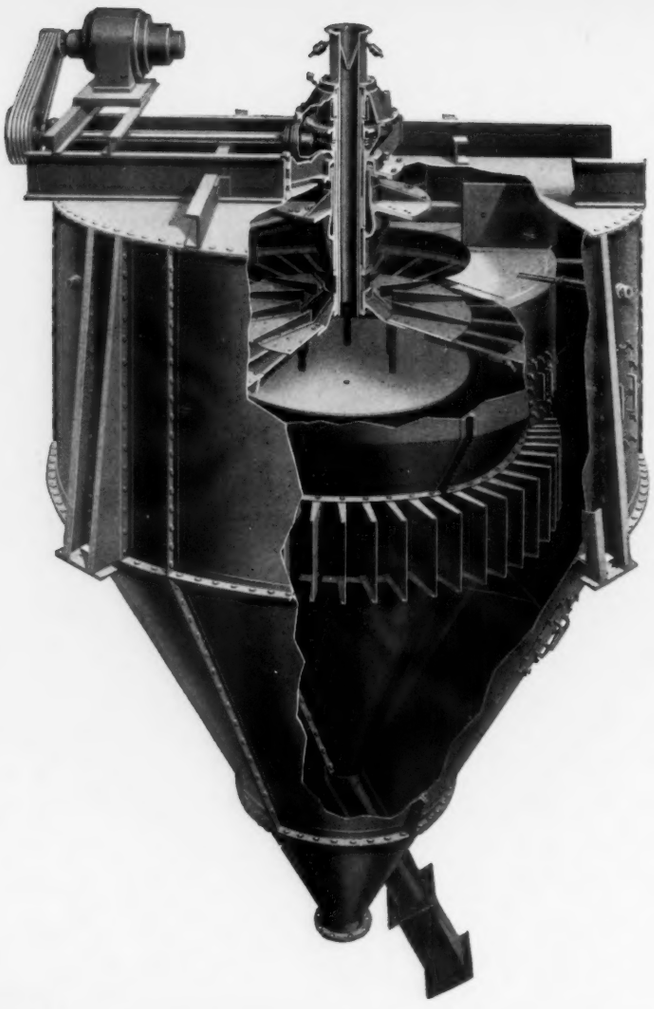

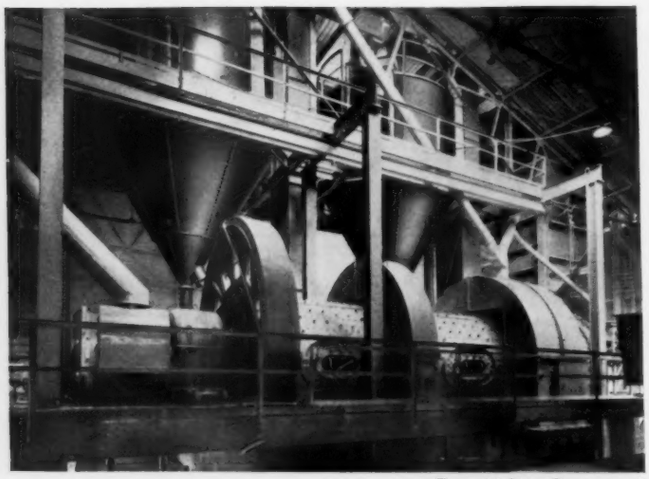

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CHICAGO, JUNE, 1934

## President Asks Funds for PWA Continuation

**HIGHWAYS ALLOTTED $100,000,000**

A deficiency appropriation of $1,322,000,000, designed to provide funds for a continuation and expansion of the government's present public-works program, has been asked by President Roosevelt. Of this sum $100,000,000 has been allotted by the House Appropriations Committee for highway construction. It is considered likely by those in close contact with congressional opinion that the bill which will be introduced to provide the money requested may be "stepped up" to as much as $2,200,000,000.

Whichever sum may be appropriated, it is certain that the mineral-aggregates, cement, lime and gypsum industries will be greatly stimulated since even the smaller of the two amounts will be equal to almost one-half of the original $3,300,000,000 public-works program.

## New Gravel Plant in Ohio Uses Vibrating Screen

★ The Lancaster Gravel Co., recently organized, has put into operation a new sand and gravel crushing, screening and washing plant at Hooker's Station, near Lancaster, O. Among the new equipment installed was a 3-ft. by 6-ft. Deister Machine Co. triple-deck Plat-O vibrating screen. Paul S. Klyne, president and treasurer of the company, is also general manager of the West Jefferson Sand & Gravel Co., West Jefferson, O. J. B. Clawson is vice president, secretary and general manager of the new company.

## Tennessee Producer Gets 1,000,000-Ton TVA Order

The Tennessee Valley Authority on May 7 completed contract arrangements with the Cumberland River Sand Co., Nashville, Tenn., for sand and gravel to be used in the Joe Wheeler Dam. This contract calls for a minimum of 1,000,000 tons to 1,400,000 tons in 18 months, to be supplied at a minimum daily rate of 7,000 tons per day on peak days. Associated with the Cumberland River Sand Co. in this work will be the Ohio River Sand Co., Louisville, Ky., and the Keystone Sand & Supply Co., Pittsburgh, Pa. According to R. N. Coolidge, general manager of the Cumberland River Sand Co., all work will be done with the dredges and floating equipment at present owned by these companies.

## Directors of Natl. S. & G. Assn. to Meet in Chicago

A meeting of the Board of Directors of the National Sand & Gravel Assn. has been called by President H. V. Owens for June 5 and 6. The sessions will be held in the Palmer House, Chicago, beginning at 10 o'clock Tuesday morning. Association affairs, which have been relegated to second place in the pressure of work on code matters, will be given renewed attention. The possibilities of developing new uses for sand and gravel and of enlarging existing fields will be considered.

## Pacific Portland Takes Over Standard Gypsum

The Pacific Portland Cement Co., San Francisco, Cal., has completed arrangements for taking over the Standard Gypsum Co., also of San Francisco, according to an announcement by J. A. McCarthy, vice-president and general manager of the company. Operations will be combined under the plaster division of the Pacific Portland Cement Co. and will be under the direction of Martin Uldall, former president of the Standard Gypsum Co. The consolidated company will own and operate 8 cement and gypsum plants, giving it a coast-wide distribution.

The Portland Cement Assn. announces the removal of its district headquarters for North Carolina, South Carolina and Virginia to Greensboro, N. C., from Atlanta, Ga. C. W. Taylor is manager of this district.

★ The Fieber Gravel Co., Brookville, Ill., has installed a 4-ft. by 8-ft. triple-deck Productive Equipment Co., heavy-duty Jigger vibrating screen.

## April Contract Awards Are 26% Under March

**PRIVATE CONSTRUCTION GAINS**

Contracts let during April for all classes of construction showed a decline of about 26 per cent. from the March volume, according to F. W. Dodge Corp. The current total, however, was more than twice as large as the total shown for April, 1933. The April contract volume for the 37 eastern states amounted to $131,413,800 as against $178,345,800 for March and only $56,573,000 for April of last year.

For the elapsed months of 1934 construction awards totaled $592,939,600 as against $252,599,800 for the corresponding four months of 1933. Gains over 1933 were shown in the totals for 1934 to date in each of the four major construction classes, about $80,000,000 in non-residential types, about $21,000,000 in residential buildings, more than $200,000,000 in public works, and about $33,000,000 in public utilities.

Private-construction awards, as distinguished from publicly-financed types, showed a larger total in April than was recorded for any other month since August, 1933. Public undertakings, on the other hand, showed a decline from March—approximately 40 per cent. but were still considerably greater than the total for April, 1933.

Contemplated construction reported in April totaled $319,721,600 as contrasted with $409,071,100 for March and $132,566,200 for April, 1933. Gains in contemplated construction as compared with a year ago were recorded in each of the 13 Dodge major areas east of the Rockies except upstate New York.

## New Missouri Plant to Produce Crushed Gravel

★ The Dillman Industries, Inc., Caruthersville, Mo., has completed the installation of a permanent crushing-and-screening plant for the production of crushed gravel. Previously the company had produced only surfacing gravel at this location.

## Prison Industries Now Operating Under Codes

### GOVERNORS OF 28 STATES SIGN

Signed by the governors or prison executives of 28 states, the Compact of Fair Competition for the Prison Industries of the United States is now in effect in those political divisions. Although approved by President Roosevelt on April 19, it became effective Jan. 1 in those states which had signed at that time and takes effect in other states as of the date of such signing. The states which have signed and in which the compact is now effective are:

| | | |
|---|---|---|
| Alabama | Maryland | Pennsylvania |
| Connecticut | Massachusetts | Rhode Island |
| Delaware | Michigan | South Carolina |
| Georgia | Minnesota | South Dakota |
| Illinois | Missouri | Tennessee |
| Indiana | Nebraska | Vermont |
| Kentucky | New Hampshire | West Virginia |
| Louisiana | New York | Wisconsin |
| Maine | North Dakota | Wyoming |
| | Oklahoma | |

The principal provisions of the compact follow:

ARTICLE II

*Hours of Labor.*—The hours of labor in prison industries shall be not more than those prescribed by the applicable code adopted under the laws of the United States governing each particular industry, but in no case shall any inmate be required or permitted to work in any prison industry more than 40 hr. in any one week.

ARTICLE III

The hours of operation of productive machinery shall be not more than is prescribed in the code of the competing private domestic industry.

ARTICLE IV

*Child Labor.*—No person under the age of 16 yr. shall be employed in any prison industry. No person under the age of 18 yr. shall be employed at operations or occupations which are hazardous in nature or dangerous to health.

ARTICLE V

*Sec. A.*—Prison products, when sold by the prison or through a contractor, whether sold direct or through any agency, shall be sold not lower than the fair current price prevailing in the market in which the product is customarily sold—to wholesalers, retailers, or consumers as the case may be.

*Sec. B.*—No penal or correctional institution or agency thereof shall enter into any contract for the labor of prisoners which does not insure a return from the contractor to the state or its political subdivision and/or the prisoner of an amount equal in value to the cost per unit of product for labor and overhead necessarily paid in competing domestic private industry on the comparable product: Provided, that the imposition or collection of such amounts or charges shall not be such as will require the sale of prison products at a higher price than specified in Sec. A hereof.

ARTICLE VI

*State-Use Products and Public Works.*—The restrictions in this compact shall not apply to goods, wares or merchandise manufactured, produced or mined by any penal or correctional institution which are solely for the use of tax-supported institutions, agencies, departments, or activities of any state or its political subdivision, nor shall they apply to the construction of public works or ways financed wholly from funds of the state or its political subdivision.

The compact is to be administered by a Prison Labor Authority of 9 members, 6 of whom shall be elected annually by the representatives of the states signing it, and 3 to be appointed by the President to represent labor, industry and consumers, respectively. The authority, besides administering the compact and making rules and regulations for conducting its business, may "formulate cost-finding systems and require the installation of such system or systems comparable therewith," and may "determine, after conferring with the code authority of the industry affected and upon request of any person or firm affected, the prices, charges and amounts provided for in Article V, Sec. A and B thereof; such determination to be subject to appeal to the President."

It is also provided that:

In establishing fair current prices, charges and amounts, the Prison Labor Authority shall take into consideration all factors necessary to insure the marketing of prison products on a fair competitive basis. It may consider, among other factors, the extent to which monopolistic practices exist in any trade or industry in which the prison industry operates, the degree to which prison products may be discriminated against, the ability of the prison industry to adjust its operations and production to meet changing styles, designs, and/or other conditions beyond its control, and any restrictions placed upon the marketing of prison products. The fair current price may not be such as will effectually prevent the sale of prison products or destroy existing markets, nor shall it permit the sale of prison products at such prices or in such manner or in such quantities as will depress the standards, wages or working conditions of the competing private industry or defeat the purpose sought to be obtained through adherence by a competing private industry to a code of fair competition under the National Industrial Recovery Act.

The authority may also require reports and statistics; regulate the output of prisons to assure diversification and "prohibit the expansion of any existing prison industry which bears a disproportionate share of competition," and hear and adjust complaints.

## Oregon Producer Reports Completion of New Plant

★ The Eugene Sand & Gravel Co., Eugene, Ore., is reported to have completed the reconstruction of the Mathews sand and gravel plant which it purchased some time ago. All new buildings and equipment have been installed, only the bins of the old plant being retained. A 1700-ft. rail spur and an office building are also under construction. According to J. R. McKy, owner, the plant has a capacity of about 50 tons per hour and is one of the most modern in the Northwest.

★ The Southern Sand & Gravel Co., Selma, Ala., has installed a new dredge using a 10-in. Amsco Type C dredge pump. Other improvements were also made to the plant.

★ The Sunnyside Granite Co., Inc., Richmond, Va., has installed a Pioneer No. 5 shaker screen in its crushed-stone plant in that city.

## Cartwright Road Bill Wins House Majority

### $400,000,000 ASKED FOR ROADS

The House of Representatives has passed the Cartwright road bill (H. R. 8,781) by a vote of 255 to 26. The bill would authorize $400,000,000 for roads in the several states with 25 per cent. required (by an amendment) to be spent on secondary roads and $50,000,000 for forest, park, Indian-reservation and public-land roads.

Should the bill be passed by the Senate and receive Presidential approval, the Appropriations Committee, which would be expected to control the rate at which the funds would be made available, would need to determine what portion of the total sums would be actually appropriated at this session. This would probably be $200,000,000 or $250,000,000, or about one-eighth of the amount which the President is expected to ask for all public works.

## Illinois Producer Buys Equipment for Stripping

★ The Lincoln Sand & Gravel Co., Lincoln, Ill., has purchased two 4-cu.yd. Koehring wheel-type Dumptors equipped with Goodyear pneumatic tires. These are being used to haul overburden removed from the deposit a distance of about 1,700 ft.

The two pneumatic-tired Dumptors being used for removing overburden.

to a worked-out section of the dredge pond. The Dumptors also bulldoze the material so that a level fill is kept. The machines do the work of 4 trains of 4½-cu.-yd. cars working on a 500-ft. haul and require only 3 men instead of 9. The company also recently replaced a revolving screen at its plant with a 3-ft. by 8-ft. Simplicity vibrating screen.

★ The Tennessee Valley Authority is installing three 5-ft. by 8-ft. and one 4-ft. by 8-ft. Stephens-Adamson single-deck vibrating screens in the rock crushing and screening plant which is under construction at Norris Dam, Tenn.

★ The Georgia Gravel Co., Columbus, Ga., recently installed a 3-ft. by 8-ft. Niagara vibrating screen on its dredge.

## Approve Cost Formula for Limestone Industry

**90-DAY TRIAL EFFECTIVE MAY 18**

Gen. Hugh S. Johnson has approved a cost formula for the limestone industry to be operative during a trial period of 90 days, during which time the code authority is instructed to work with the National Recovery Act Division of Research and Planning in a further study of costs.

It is declared to be unfair competition to sell limestone at a lower figure than results from a computation of the following items, excluding the operations which are not actually involved in turning out the material: Code administration, 1 c. per cu. ft.; jointing 8 c. per cu. ft.; stone-stock storage, 1 c. per cu. ft.; car blocking, 9 c. per cu. ft.; gang and rip sawing, 21 c. a cu. ft.; rip sawing, 8 c. a cu. ft.; baluster lathe turning, $1.50 an hr.; milling-machine work, $1.65 an hr.; turning with column lathe, $2 an hr.; drafting, $1.45 an hr.; planing, $1.75 an hr.; cutting, $1.70 an hr.; selling and administration, 10 per cent. of the resulting processing cost.

Any member of the industry using an operation not listed above must add an item to cover that cost. The cost must include a 10-per cent. allowance for waste on rough and scabbled blocks, and a 5-per cent. allowance for waste on sawed stone.

The formula establishes what is considered to be the lowest proper cost for each type of limestone and for each operation. The costs are not applicable to stone turned out in fulfillment of contracts which were in process prior to the effective date of the formula, which is May 18.

Provision is made for establishing lower individual costs where they can be justified. On this point, Gen. Johnson stated:

"Any member of the industry may petition the Administrator for permission to use the individual costs of such member of the industry when such individual costs are less than those established in this formula. Such petition shall be accompanied by adequate cost data substantiating the position of such member of the industry. After such hearing as the Administrator shall prescribe if such petitioner is able to substantiate individual lower costs than those fixed in this formula, and if in the opinion of the Administrator the purposes of the National Industrial Recovery Act will not be defeated by permitting such petitioner to use such lower costs, the Administrator may prescribe such costs rather than those prescribed in this formula. When the facts in the case warrant it, the Administrator in his discretion may suspend the provisions of the allowable cost formula insofar as it will affect such a petitioner, without or pending hearing. For 6 days after such approval such successful petitioner shall not use such approved costs in computing a job and the code authority shall advise all members of the industry of the details of such member's approved costs. Any other member of the industry may sell below the cost formula herein prescribed and down to the cost prescribed for such petitioner in order to meet the competition of such competitor."

## Ohio Gravel Producer Adding New Equipment

★ H. O. Baldwin, sand and gravel producer of Willoughby, O., is remodeling, relocating and increasing the capacity of his operations in that city. The increasing demand for materials for county and state highway work is responsible. Equipment to be installed includes a new screen, washing equipment, etc. This plant was formerly operated as the Lake County Gravel Co.

## Approve Cement Uniform Cost-Accounting System

Gen. Hugh S. Johnson has approved a uniform cost-accounting system for the cement industry which embraces, with some modifications, the book on cost accounting published by the Portland Cement Assn. in 1928.

The publication of 1928 was a revision of the association's book printed in 1917, and was intended to give special attention to accounting needs resulting from improved methods of operation, the consolidation of statistical and cost reports, and the simplification of records and forms.

Due to abnormal conditions brought about by the changed economic situation, the method of treating shutdown expense has been rewritten and substituted for Chapter 8 in the manual of 1928.

The uniform cost-accounting system has been the subject of study in departments of the National Recovery Act since last December.

## Johnson Approves Slate Industry Code Authority

Administrator Hugh S. Johnson has approved the industry's selections for code authority members to administer the slate code. The following were chosen to serve for one year: Richard D. Chapman, president of the American Slate Assn.; A. H. Morrow and A. L. Carpenter, representing the New York-Vermont region; N. W. Male, Dester Focht, and W. A. Kitto, representing the Pennsylvania-Maryland region; and J. W. Coleman, representing the Maine region.

★ The Hartland Washed Sand & Gravel Co., Hartland, Wis, recently installed two Lippman 4-ft. by 8-ft. triple-deck vibrating screens.

## Cement Plants Reopen After Long Shutdowns

**PRODUCTION GAINS CONTINUE**

While figures are not yet available on Portland cement production and shipments during May all indications point to a continued improvement over the same month in 1933. The growing activity in construction work has necessitated the reopening of many cement plants which have been shut down for six months or more. A further indication is the fact that the few plants which shut down during May did so because of temporary local conditions. In addition to the reopenings a number of plants already in operation increased their production. The following plants are reported to have resumed operation during May: Aetna Portland Cement Co., Fenton, Mich.; Medusa Portland Cement Co., Bay Bridge, O.; Cowell Portland Cement Co., Cowell, Cal.; Universal Atlas Cement Co., Hudson, N. Y.; Oregon Portland Cement Co., Oswego, Ore.; North American Cement Corp., Howes Cave, N. Y.; Alpha Portland Cement Co., Cementon, N. Y.

## Birmingham Slag Co. Improves Concrete Plant

★ The Birmingham Slag Co., Birmingham, Ala., recently completed improvements costing $10,000 to its concrete central-mixing plant at Ensley, Ala. Improvements were made to equipment and the former wooden structure was replaced with steel.

## Sandstone Industry Code Representatives Approved

Representatives of the sandstone industry nominated by the trade to serve on the national code authority set up under the National Recovery Act have been approved by Gen. Hugh S. Johnson.

The following will constitute the group: S. D. Knight, Cleveland Quarries Co., Cleveland, O.; Harold T. Blum, Briar Hill Stone Co., Glenmount, O.; Volney S. Taylor, Taylor Stone Co., McDermott, O.; Charles H. Heintel, Heintel-Ritchie Cut Stone Co., Cleveland, O.; Harry Nicholl, Nicholl Stone Co., Lorain, O.

The Moorman Sand & Gravel Co., Middletown, O., headed by E. B. Moorman, has purchased the plant of the Columbia Sand & Gravel Co., of that city.

★ The McCarthy Improvement Co., Davenport, Ia, has purchased a Stephens-Adamson concrete batching and mixing plant of the all-steel knockdown type to be erected at Winona, Minn., for work on Mississippi River Lock 5-A.

## Gen. Johnson Approves Soft Lime Rock Code

### WAGES HIGHEST IN HISTORY

Making provision for what is believed to be the highest wages for common labor in the history of the industry, a code of fair competition for the soft lime rock industry received the approval of General Hugh S. Johnson and became operative May 17.

The minimum hourly rates of pay of 40 c. in the North, 30 c. in the intermediate zone and 25 c. in the South, regardless of whether an employe is compensated on a time rate, piecework or other basis, represents an increase in many instances of 150 per cent. over the pre-NRA standards. However, General Johnson is of the opinion that application of the terms of the compact will return large benefits to the producers which, through stabilization of their industry, will make it possible for them to carry the additional cost load.

"As reported by the Southeastern Soft Lime Rock Assn., the 1933 shipments of the products of this industry have decreased about 57 per cent. below that of 1931," he said. "Accordingly, serious competition has existed with the result that ruinous price-cutting has been practiced. By reason of the provisions in this code prohibiting unfair trade practices, and the provisions relating to selling below cost and price publication, it is believed that the price structure within the industry will be materially stabilized by reason of the approval of this code."

Provision is made for a maximum work week of 40 hours, to be averaged over any three months period, not more than 48 hours to be worked in any one week, eight hours in one day or six out of any seven-day period. All work in excess of this must be compensated for at one and one-half the normal pay.

Exemption from the above hourly limits are allowed for outside salesmen; executives, supervisors, or technical assistants who are paid not less than $35.00 a week; watchmen, who may work 56 hours a week; employes engaged in emergency maintenance or repair work, who receive overtime pay as above specified; and clerical employes, who may work 40 hours a week, eight hours a day and six days a week. Clerical and office employes must be paid not less than $15.00 a week in the North, or $14.00 a week in the South. The child labor provision is 18 years for those engaged in hazardous work, and 16 years for others.

"With any reasonable volume of business, it is estimated that the average weekly earnings, in spite of shorter working time, will far exceed those for any recent previous year, including the year 1929," General Johnson reported.

The administrative setup will consist of the executive committee of the Southeastern Soft Lime Rock Assn. to which NRA may add two members of the industry not affiliated with the Association. This code authority is clothed with the powers and subjected to the duties general imposed. It also is given power to establish uniform sales and credit practises which, after receiving the approval of the Administrator, shall be binding upon all members of the industry, and a violation of which shall constitute a violation of the code.

For the benefit of the industry as a whole, the code authority will make a survey to determine the existing and potential productive capacity, which information will be imparted to members. No new installations of equipment or transfers of plant sites are to be made without first notifying the code authority.

Selling below producers own cost, excepting to meet competition is banned by an unfair trade practice section. Cost will be determined by a formula to be drafted by the code authority, subject to approval by the Administrator. Sales also are restricted to a unit price basis, lump sum bidding being outlawed. Other practices listed as unfair are: Secret rebates, contract interference, contingent selling, and commercial bribery.

## Feldspar Code Authority Proposes Classifications

The feldspar industry's code authority has filed with the National Recovery Act four proposed classifications for ground feldspar, and Deputy Administrator C. L. Hickling has fixed May 29 as the last date for the receipt of objections.

The classifications would include glass grade; enamel grades; whiteware and miscellaneous grades; and glaze grades. Each would be based on particle size, chemical composition, or both, and the purpose or use.

Glass grades would be classified according to particle size and the percentage of alumina. They are defined as feldspars prepared for use in the manufacture of glass, and shall include grades sold direct to manufacturers of glass, or through jobbers, brokers, agents or others for manufacture of glass. Four grades are proposed and tolerances fixed.

Enamel grades would be classified according to particle sizes or degrees of fineness and the percentage of silica. They are defined as feldspars prepared for use in the manufacture of porcelain enamel to be applied to sheet- or cast-iron surfaces. Four grades and the method of their classification are set out.

Whiteware and miscellaneous grades would be classified according to particle sizes or degrees of fineness and the percentage of silica. They are defined as feldspars prepared and sold for use in the manufacture of pottery, electrical porcelain, floor wall and faience tile, sanitary ware, semi-porcelain, vitrified and china articles, etc.

## Permissive Areas in California Approved

### OTHERS EXPECTED TO FOLLOW

The Administrator for Industrial Recovery on May 16, by means of Administrative Order No. 109-15, approved the establishment of permissive areas in the State of California. This substantiates Gen. Johnson's recent claims that the work of the Administration is entering a new phase; that its time necessarily has been mainly occupied heretofore in the "manufacturing" of codes and that principal emphasis would henceforth be laid upon code administration and enforcement. It is fitting that the state of California should be the first to have its permissive areas approved as this state was a leader in the development of the code and was the first to submit a complete presentation on permissive areas to the Administration.

The approval of these permissive areas is effective ten days after the date of the order. It is also specified that the "said areas shall be established as 'permissive areas' on an experimental and tentative basis for a trial period of ninety (90) days from the effective date of this Order, which period may be extended upon cause being shown that such a renewal will tend to effectuate the purposes of the Act."

## Permissive Areas to be Subject of Utah Meeting

A public hearing on the establishment of permissive areas in the state of Utah will be conducted by the state committee on the crushed stone, sand and gravel and slag industries, beginning on Mon., June 4, and continuing until completed. This hearing will be held in the Chamber of Commerce Bldg., Salt Lake City, and will be in charge of Eric Ryberg, chairman. It is announced that an opportunity to be heard will be given to anyone interested in the effect of the establishment of the proposed permissive areas. Proposals for the elimination or modification of these areas or for additions to them will also be received. Data and maps are on file in the office of R. F. Weske, research engineer for the Utah State Committee at 220 Beason Bldg., Salt Lake City, Utah.

★ The Weston & Brooker Co., Columbia, S. C., has bought and installed a 6 ft. by 12-ft. Niagara vibrating screen in its plant at Cayce, S. C. A surge bin and feeder were added and other improvements were made.

★ C. C. Kelly, sand and gravel producer of Mishawaka, Ind., has purchased an 8-in. dredging pump and fittings from Hetherington & Berner, Indianapolis, Ind.

## PWA Highway Projects Follow State Road Trend

**SAME PERCENTAGE IS CONCRETE**

The trends evident in state highway construction in 1932 are reflected rather closely in the record of the P. W. A. highway projects that had been approved to Dec. 31, 1933. From the accompanying figures it will be seen that concrete roads enjoy about the same relative favor in P. W. A. apportionments as in state programs. Concrete highways which formed 19.16 per cent. of state construction in 1932, constitute 18.80 per cent. of P. W. A. projects. Bituminous highways, which were 29.07 per cent. of 1932 state programs, form 22.12 per cent. of the P. W. A. projects. Untreated highways, which were 30.69 per cent. of the state programs, amount to 42.85 per cent. of the P. W. A. allotments.

The state data cover the construction of 38.325 mi. of pavement (7,497 mi. hard-surfaced, 11,140 mi. bituminous, 6,002 mi. surface-treated, and 11,761 mi. untreated). The P. W. A. projects include 13,413.2 mi. (2,583.9 mi. hard-surfaced, 2,968.2 mi. bituminous, 2,113.9 mi. surface-treated, and 5.757.2 mi. untreated).

**TYPES OF HIGHWAY CONSTRUCTION AUTHORIZED BY STATES IN 1932 AND ON P. W. A. PROJECTS IN 1933**

| Type of Construction | State Highway Construction, 1932 | | P. W. A. Projects Approved to Dec. 31, 1933 | |
|---|---|---|---|---|
| | Miles | Percentage of Total Mileage | Miles | Percentage of Total Mileage |
| Hard-surfaced: | **7,497** | **19.56** | **2,583.9** | **19.27** |
| Concrete | 7,344 | 19.16 | 2,520.9 | 18.80 |
| Brick | 153 | .40 | 63.0 | .47 |
| Bituminous: | **11,140** | **29.07** | **2,968.2** | **22.12** |
| Macadam | 1,344 | 3.51 | 461.1 | 3.43 |
| Bituminous concrete | 516 | 1.35 | 706.0 | 5.26 |
| Low-cost | 9,280 | 24.21 | 1,801.1 | 13.43 |
| Surface-treated: | **6,002** | **15.66** | **2,113.9** | **15.76** |
| Sand-clay | 369 | .96 | 557.7 | 4.16 |
| Gravel | 5,053 | 13.19 | 1,317.7 | 9.82 |
| Macadam | 580 | 1.51 | 238.5 | 1.78 |
| Untreated: | **11,761** | **30.69** | **5,747.2** | **42.85** |
| Gravel | 10,679 | 27.86 | 4,973.5 | 37.09 |
| Macadam | 476 | 1.25 | 203.8 | 1.52 |
| Sand-clay | 606 | 1.58 | 569.9 | 4.24 |
| Others | 1,925 | 5.02 | | |
| Totals | **38.325** | **100.00** | **13,413.2** | **100.00** |

## Wisconsin Company Buys Complete Gravel Plant

★ The Wissota Sand & Gravel Co., Eau Claire, Wis., recently put into operation a complete new gravel crushing, screening and washing plant with Lippman 4-ft. by 8-ft. single and triple-deck vibrating screens and a 12-in. by 36-in. crusher of the same make. This plant is located at Barron, Wis.

## Illinois Passes N.R.A. State Enforcement Laws

Gov. Henry Horner has signed the Illinois bill making the provisions of the National Industrial Recovery Act enforceable in the state courts and it is now law. This follows similar action taken by the legislatures and governors of other states. Notable among these are Ohio and California which passed state N.R.A. enforcing laws covering intrastate business last summer. The Illinois bill was vigorously opposed by the Chicago Assn. of Commerce and the Illinois Manufacturers' Assn.

## Pennsylvania Producer Rebuilds Stone Plant

★ The Lime Bluff Co., Inc., Harrisburg, Pa., has completed the rebuilding of its crushed stone plant at Lime Bluff, Pa. Equipment installed includes a 30-in. by 42-in. Farrell jaw crusher, a 60-in. by 20-ft. Telsmith revolving screen, a 100-hp. Hamilton Corliss engine, a 100-hp. Kiel return-tube boiler, and Sprout Waldron elevating, conveying and transmission machinery. A steel and concrete ramp has also been built for delivery by truck from the quarry to the crusher.

## Chicago Investigates Cost of Building Cement Plant

Alleged discrimination against the city of Chicago, Ill., in the purchase of cement has been the subject of heated discussion recently by members of the city council finance committee and has been the reason for the refusal of the committee to accept the bids submitted. The committee adopted a motion directing Public Works Commissioner Hewitt to investigate the cost of erecting a city cement plant and to invite other Illinois cities to join in the enterprise. At this meeting Alderman James J. Bowler pointed out that a similar threat by the state brought material price reductions.

The Allegheny River Sand Corp., with a plant at Reesedale, Pa., recently launched a new motor tow-boat on Allegheny River. This boat is 65 ft. in length and is powered with a 125-hp. Diesel engine. This addition gives the company a fleet of three boats.

## A. F. of L. Closes Down Three Ohio Lime Plants

**SEVEN OTHER PLANTS OPERATING**

A general strike called by The Quarry Workers International Union of North America, an affiliate of the American Federation of Labor intended to close all of the plants in the Northwestern Ohio Finishing Lime District, was only successful at three of the plants. Workers at the plant of The Ohio Hydrate & Supply Co., at Woodville walked out on May 22, followed by workers at the plants of The National Lime & Stone Co. at Carey, and The Herzog Lime & Stone Co., at Forest, the next day. Other plants in the district not affected to May 29, are The United States Gypsum Co., The Kelley Island Lime & Transport Co., The National Gypsum Co., The Woodville Lime Products Co., The National Mortar & Supply Co., The Gibsonburg Lime Products Co. and The Washington Building Lime Co.

Minimum wages required by the code in this district must not be less than 37½ c. per hour. Minimum wages at present are not less than 40 c. in any of the plants and more in some. The demands of the union are for a minimum of 50 c. per hour with the labor so classified that, it is said, in most cases the minimum would not cover ten per cent. of the employees. Demands for classified labor range from the 50 c. minimum to 85 c., with the following rates representative: powdermen, 85 c., single-drum hoist operators, 78 c., double-drum operators, 85 c., shovel operators, 85 c., truck drivers, 70 c., machinists, 85 c., millwrights, 85 c., lime loaders, 85 c., hydraters and baggers, 85c., kiln burners drawmen, 78 c., welders, 85 c., pump men, 70 c., crusher men, 78 c., air or churn drill men, 78 c., blacksmiths, 85 c., timekeepers and office clerks, 85 c., foremen, 85 c., gas producer men, 78 c., night watchmen, 70 c., kiln masons, 85 c., stone loaders in the quarry, 55 c., per two-ton car.

## Lone Star Building New Laboratory at Hudson, N.Y.

The International Cement Corp., New York, N. Y., which operates 14 plants in the United States, South America and Cuba, is reported to be building a new laboratory at its plant at Hudson, N. Y., where research work for the entire corporation will be done. This work was formerly done in New York City.

The Union Quarries Co., Van Wert, O., is making extensive improvements to its plant there. Screens, elevators and other equipment are being installed.

★ Clarence Burke, Wausau, Wis., has installed a Lippman 4-ft. by 8-ft. single-deck vibrating screen in his plant in that city.

## N. R. A. Approves List of Hazardous Occupations

**BARRED TO EMPLOYES UNDER 18**

National Recovery Administrator Hugh S. Johnson on May 25 approved a list of hazardous occupations in the crushed stone, sand and gravel and slag industries, as submitted by the Code Authority at which no employees under 18 years of age are hereafter to be employed. The twelve such occupations follow:

Work in or about quarries or sand or gravel banks or pits, including all surface work.
In the transportation or use of explosives or explosive substances.
All dredging work.
All work on screens or crushers.
All stevedoring work.
In oiling, cleaning, or wiping machinery in motion.
In applying belts to a pulley in motion or assisting therein.
In proximity to any unguarded belt or gearing.
Work of employees engaged as firemen.
Switching and work on and about railroad equipment.
Clean-up on barges or cars under clamshell buckets.
Driving trucks of over 2 tons capacity.

## California Company Has 1½ Mi. Aerial Tramway

★ The Santa Clara Holding Co., Ltd., is installing an aërial tramway more than 7,800 ft. in length at its quarry near Los Altos, Cal. The line will be operated by gravity and will have a capacity of about 75 tons per hr. The company has its offices in San Francisco and its officers are A. C. Dierix, president and Geo. Dauler, secretary.

## R.M.C. Code Authority Meeting Well Attended

The Temporary Code Authority for the Ready Mixed Concrete Industry held a meeting May 25 at Washington, D. C., which was well attended by members. The only items of particular general interest were a report relative to the co-operation the Code Authority was receiving from the members of the industry in the relatively short time since the signing of the code on Feb. 27, and the approving of a number of marketing areas.

The report indicated that a majority of the known members of the industry had filed their certifications of compliance with the Code Authority, and were complying with the provisions of the Code. Production affidavits filed with the Code Authority represent a reported volume of about 75 per cent. of the estimated production of the entire industry.

A number of marketing areas have been and are being established at various points throughout the country. These marketing areas are being established as local branches of the Code Authority for the purpose of administering the Code and effecting local self-government. Seven such areas were approved at this meeting, which, because of the time required to establish such areas, is considered by the Code Authority to indicate a desire on the part of the industry as a whole to co-operate.

The marketing areas approved at this meeting are known as the St. Louis, Los Angeles, San Francisco, Milwaukee, Pittsburgh, Boston and Cleveland Marketing Areas. A number of others are expected to be approved in the near future.

## R.M.C. Producers Electing Code Authority by Mail

Ready-mixed-concrete manufacturers who have signed code-compliance forms are electing by mail ballots the members of their industry's code authority. The country has been divided into 7 regions for the purposes of code administration and the following men have been nominated for membership on the code authority for their respective regions.

Region No. 1
A. Johnson, Central Concrete Mixing Corp., Brooklyn, N. Y.
A. G. Gull, Transit Mix Concrete Corp., New York, N. Y.
Region No. 2
J. E. Burke, J. K. Davison & Bro., Pittsburgh, Pa.
Charles P. Maloney, Maloney Concrete Co., Washington, D. C.
Region No. 3
J. E. Donelson, Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.
Davis Thornton, Cromer & Thornton, Inc., Atlanta, Ga.
Region No. 4
A. C. Avril, Avril Tru-Batch Concrete, Inc., Cincinnati, O.
G. W. Cooper, Cooper Supply Co., Detroit, Mich.
Region No. 5
J. L. Shiely, Guaranteed Concrete Co., St. Paul, Minn.
J. A. Campbell, Ready Mixed Concrete Corp., Minneapolis, Minn.
Region No. 6
T. E. Popplewell, Ft. Worth Sand & Gravel Co., Ft. Worth, Tex.
C. H. Makins, Makins Sand & Gravel Co., Oklahoma City, Okla.
Region No. 7
R. E. Tremoureux, Golden Gate Atlas Material Co., San Francisco, Cal.
George W. Gauntlett, Pioneer Sand & Gravel Co., Seattle, Wash.

## Ohio Producers Meet to Select Permissive Areas

Aggregates producers in Ohio were invited to attend a meeting of the Ohio State Committee (Region 8) to be held at Columbus on May 25 to present comments, criticisms or suggestions on the determination of "permissive" areas in the following Ohio counties: Adams, Allen, Auglaize, Clermont, Clinton, Fayette, Greene, Hamilton, Highland, Medina, Mercer, Preble, Ross, Scioto and Warren. It is expected that a report of the committee's recommendation can then be made for consideration by the Regional Committee.

★ The Maribel Sand & Gravel Co., Maribel, Wis., has installed a Lippman 4-ft. by 8-ft. single-deck vibrating screen.

## Propose Federal Review of Railroad Purchases

**MAY AFFECT MATERIAL SALES**

A movement which may vitally affect suppliers of materials purchased by railroads has been approved this month by the General Committee of the Purchases and Stores Division of the American Railway Assn., as a result of a plan proposed by the Federal Coördinator of Transportation. The plan calls for reviewing all purchases made by the railroads, with the expectation that it will result in direct benefit to the railroads individually and as a whole through furnishing accurate and detailed information regarding current prices and price trends and in promoting the application of American Railway Assn. standards.

After a trial period as provided in the recommendation of the committee it is expected that a final plan for Regional Reviewing Boards will be submitted to the Regional Coördinating Committees. The railroads in each region, under the plan, send to the Regional Reviewing Board one copy of each purchase order issued. Each order will show a description of the material ordered, routing of the material from the vendor to the point of delivery, and price of the material, with items which conform to A. R. A. standards being identified. After these orders have been reviewed at a monthly meeting of the Regional Board, they will be sent to the office of the Federal Coördinator of Transportation in Washington for further study as may be found desirable.

It is expected that in addition to furnishing information on prices and promoting the application of standards, the plan should also disclose possibilities for more economical routing of materials from the source of supply to the point of railroad delivery.

This plan, an announcement by the Coördinator states, has been under consideration for some months by railroad purchasing officers, equipment and supply manufacturers, and the Coördinator's office. The conclusion is that it will develop a quantity of useful information which could not be secured by any other means.

The first reviewing board recommended is for the Chicago area, with detailed operating plans to be developed from this start. It is indicated that reviewing boards should probably be established in seven regions, and it has been proposed that the chairmen of these boards constitute a National Reviewing Board, which would meet with representatives of the Coördinator at such intervals as might be found desirable, for the purpose of considering purchasing problems of national scope.

★ The Boscobel Granite Quarries, Inc., Richmond, Va., has installed a Pioneer No. 5 shaker screen in its crushed-stone plant at Manakin, Va.

## Gypsum Industry Code is Signed by Johnson

### RECOGNIZES NEED FOR BUSINESS

Because practically the entire gypsum industry has been operating under the President's Reemployment Agreement, the approval of a code of fair competition for that trade, effective May 21, is not likely to increase employment or payrolls, at least until business improves, General Hugh S. Johnson commented as he affixed his signature to the compact.

The code, it is hoped by NRA, will play an important part in the economic rehabilitation of an industry whose production has decreased 75 per cent. from the 1929 level, and which now employs less than one-half the force it utilized in the boom years. It is estimated that 3,250 persons are now employed in gypsum production as against 7,016 in 1929. Operations under PRA advanced payrolls about 20 per cent., and employment numbers about 8 per cent.

Following is General Johnson's summarization of the labor provisions involved:

"This code provides for a maximum work week of 40 hours, except that, during peak production periods and emergencies, employees may be permitted to work 48 hours in any week, provided that their hours of work do not average more than 40 hours per week during a six months period. It provides for the payment of one and one-half the normal rate for time worked in excess of eight hours a day. The following are excepted:

(a) Clerical, office, sales service and sales employees, who may be permitted to work not more than an average of 40 hours per week in any 30 day period, nor more than 48 hours in any week;

(b) Employees in technical, professional supervisory, managerial or executive capacities, receiving more than $35.00 per week, and outside sales and sales service employes.

(c) Employes on emergency maintenance or emergency repair work who, however, must be paid one and one-half times the normal rate for time worked in excess of 40 hours in any week or eight hours in any day;

(d) Watchmen, who may be permitted to work a maximum of 56 hours in any week;

(e) Engineers, firemen and pumpmen, who may be permitted to work a maximum of 48 hours in any week.

"The code provides for minimum wage rates for clerical, office, sales service and sales employees of from $14.00 to $15.00 per week depending upon the size of the city within the trade area of which they are employed, and for minimum wage rates for other employes as follows:

(a) Forty cents per hour in any city, wherever located, of 100,000 population or over or in the immediate trade area of such city;

(b) Forty cents per hour in the Pacific Coast Territory;

(c) Thirty cents per hour in the South;

(d) Thirty-seven and one-half cents per hour in the remainder of the United States.

"The rates of wages of employees receiving more than the minimum but not more than $35.00 a week, may not be reduced, and must be increased by an equitable readjustment, provided this has not already been done prior to the effective date of the code."

To meet a situation which was presented to NRA as one peculiar to this type of industry, the following paragraph was inserted at the behest of labor:

"Employes other than maintenance or supervisory men, or those necessary to protect property, shall not be required as a condition of employment to live in homes rented from or specified by the employer. No employee shall be required as a condition of employment to trade at a store owned or specified by an employer."

Administration of the code is placed in the hands of the board of directors of The Gypsum Association, to which one member shall be added by vote of non-members of that Association. Three administration members, without vote, will be designated by NRA. To meet the requirements of the recovery administration, each member of the industry producing 25 per cent. or more of the total annual tonnage must be represented on the code authority and at least one must represent the Pacific Coast region.

As a means of controlling competitive abuses, sales below cost are barred. This regulation and the machinery to carry it out are provided in the following language of the approved code:

"After a definition and schedule of cost has been adopted by the code authority and approved by the administrator as provided in Section 2 of this article, no member of the industry shall price or sell any industry product below such member's cost, as so defined, except to meet a competitive price on the same product or except in the introduction of a new industry product or except when the necessity of meeting the competition of a non-industry product is recognized by the code authority and approved by the administrator. The code authority may consider and describe other conditions and circumstances, if any, under which members of the industry may sell below such member's cost, which shall first be submitted to the administrator for approval. Any exceptions permitted by or under this section shall be disclosed to and shall apply to all members of the industry.

"Within 90 days after the effective date of this code, the code authority shall prepare a definition and schedule of costs for the purposes of this article. After the same shall have been submitted to the industry for criticism and suggestions, the same shall be submitted to the administrator for his approval.

"Each member of the industry shall have available records and information necessary for determining costs in accordance with such definition and schedule irrespective of the member's system or method of keeping records. For the purposes of this code, cost of each industry product shall be determined by each member of the industry by computing according to such definition and schedule the weighted average cost of the total production of such product of such member for the 12 calendar months preceding the date of sale of such product."

Members are required to list with the code authority all prevailing prices, within 10 days from the approval date of the code, and to adhere to those prices until changed in accordance with the terms of the compact.

The code authority is instructed to study marketing conditions and make recommendations to the industry for a merchandising plan for the sale and distribution of industry products, to insure fair selling methods and prevent unfair competitive practices. When approved by the administrator, the merchandising plan may be made a part of the member's terms and conditions of sale.

To be permitted to protect prices on any job contracted for it will be necessary for each member of the industry to list with the code authority all pending jobs. Protection shall expire in 30 days on all contracts except those with the Federal government, which shall expire in 60 days.

Among the competitive practices barred as unfair are: Secret rebates or subsidies; defamation of competitors; false branding; imitation of trade mark; sales on consignment; shipments without orders; failure to state unit price; combination sales; substitutions; splitting of compensation; financing dealers or contractors; and false classification.

## Indiana Gravel Producer Gets Large Ballast Order

The Western Indiana Gravel Co., Lafayette, Ind., according to Frank C. Sanders, manager of the company's plants at Leesburg and Winona Lake, Ind., is enjoying a rush of business at these two plants and is working night and day shifts. Mr. Sanders says that the early business far exceeds that of the last few years and prospects for the season are unusually bright. The company has an order for 165,000 tons of sand for railway ballast and also has a large order from the Chicago Sanitary District.

## Wisconsin Producer Buys Two Steam Locomotives

★ The Sturgeon Bay Co., Sturgeon Bay, Wis., recently purchased two Vulcan 21-ton steam locomotives from the Birmingham Rail & Locomotive Co. These are being used in filling a number of contracts for rip rap work on the Great Lakes, one of which was for 430,000 cu.yd. for the Indiana Harbor P.W.A. project.

# Editorials

## *Dangers of Regimentation*

AMERICANS are widely known for their assertion of libertarian principles and their history books are filled with glowing accounts of situations in which their innate love of liberty has won the ascendancy over mere selfish interest. Patrick Henry's "Give me liberty, or give me death" has thrilled the heart of every American schoolboy and has been raised almost to the level of a national *credo*, so firm is the average American's faith in the ideal of freedom of thought and action. Yet there have been times when civil liberty of the actual and not the academic variety has been at a very low point in this country and there were few who raised their voices in protest. Just so wide can be the gulf between theory and practice.

A rather unfair advantage is being taken of this American fondness for theoretical liberty when the newspapers invite us to consider the horrors of the "regimentation" that is being imposed upon us, it is said, by some of the public-welfare legislation of the federal government. The word "regimentation" has an ugly sound, suggestive of the militarism so repugnant to American and other liberty-loving minds. Its use in connection with our present-day methods of attempting to meet a national crisis is calculated to arouse, and in many breasts does arouse, a feeling of deep resentment that approaches very closely the borderline of hatred. It is a tricky device employed in an effort to discredit by ridicule and misrepresentation principles whose soundness can not be disproved by facts or logic. Clothed in the deceptive garments of a crusader for personal liberty, the "regimentation" alarmist bores his way into the good opinion of an unsuspecting public and makes a concern for the general good appear to be the rankest injustice of a criminal despotism.

Just how real, how dangerous, how inimical to the best interests of sane libertarians is this "regimentation" specter? What threat does it hold for the well-being of the majority of the people, whose peace of mind is said to be so disturbed by the possibilities of a thwarted liberty complex? What are the real losses incurred through the sacrifice of a fanatical attachment to "liberty in principle" as compared with the material, mental and moral gains which a legislative program, built on a desire to improve the lot of the average man, sets up?

Some self-appointed guardians of the liberty fetish feel this threat of "regimentation" rather keenly, largely because they fear the loss of what they like to boast of as the "hard-won freedom of the press." If this freedom denotes a privilege to distort or withhold the truth at the behest of expediency or special privilege—as a close study of our newspapers shows is so often the case—its value to the public at large may seriously be questioned. It should be obvious that a newspaper compelled to tell the truth would be a more useful servant of the public than one free to circulate falsehoods. This is a form of "regimentation" that would prove exceedingly irksome to our "organs of opinion" but very important to their readers.

Their aversion to regulation does not stop here, however. Freedom of speech, always closely associated with freedom of the press, comes in for a large share of their attention. They can develop a broad and warm enthusiasm for this form of liberty when verbal criticism is directed at persons and programs which they, for political or commercial reasons, do not approve, but they look with suspicion on anyone claiming the same right to criticize the policies for which they stand. The closeness with which the line of cleavage between Republican and Democratic newspapers coincides with the line of division between those who disapprove and those who approve "new deal" measures is evidence of the narrowness and selfishness of partisan newspaper editorial opinion as well as of the dangers to which an undiscriminating reader public is exposed.

On the question of freedom of association these guiders of public opinion exhibit the same double standard of ethics. Associations of manufacturers, chambers of commerce and similar bodies are, from their point of view, perfectly legitimate expressions of group opinion and proper protectors of group interests and the bargaining and other powers that evolve naturally from them are normal and wholesome developments. But associations of consumers and associations of workers, designed to preserve rights and to promote bargaining power, are presumably not founded on equally legitimate bases, and measures contrived to guarantee their privileges—such as the collective-bargaining and representatives-of-their-own-choosing provisions of the National Industrial Recovery Act—constitute an oppressive "regimentation" and an invasion of long-established liberties.

And then there is the problem of freedom of contract, insured by common-law tradition and constitutional prescription. We must maintain it at all costs, say these champions of the dying cause of liberty, at least when it comes to contracts covering the purchase of commodities at less than their cost and of labor at less than its worth, and, of course, only when we are the buyers and not the sellers. Other business men and workers must be honorable and honest when they deal with us, but when the government seeks to codify business ethics and tries to subject us to the conduct standards which we exact from others then we decry the spread of "regimentation" and bewail the loss of sacred liberties.

Too much of the hue and cry about liberty smacks of insincerity and a desire to divert public attention

from real problems and real solutions. And the recent clamor about "regimentation" is of the same pattern. All law, all order, all organization, all nature is a kind of regimentation. Standardization of production methods, uniformity of technical processes, every synthesis of our expanding knowledge is regimentation. Business uses, approves and applauds all these forms of regimentation; why then so much hedging about "regimentation" in the ethical practices of business?

A free and untrammeled speech and press are certainly desirable, but what if the voice or the pen have no worth-while opinion to express? Freedom of association is a genuinely good social principle, but what if it be used for antisocial ends? Freedom of contract may be worth every sacrifice, but what of agreements that perpetuate injustice and foster rebellion?

Much may be said for "regimentation," even the variety of which so many editors now complain. If used to raise the standards of living and consumption, it may be highly desirable. If used to minimize the artificial inequalities that have been allowed to grow up among men, it may promote social well-being. If used to prevent the rapacity, the brutality and the waste of a rugged and rampant individualism, it may add greatly to the joy of living. If used to increase the spread of knowledge and to hurry the dissolution of shams, it may quicken our advance to a period of true enlightenment. Regimentation, even as our alarmists like to portray it, might be a reasonable price to pay for any one of these social gains.

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### *Chiseling by Intimidation*

ILLINOIS has earned the doubtful distinction of being considered one of the most troublesome states in the country when it comes to buying cement for public use. Its officials have adopted every course open to them in an effort to break the "ring of collusion" which they allege has existed among cement manufacturers. The fact that the latter had offered to furnish cement to the state at a uniform price seemed to substantiate the claim and the charge won wide acceptance among newspaper editors and, through them, on the part of the public. As a last resort the state threatened to erect a state-owned cement plant which, it was said, could produce the cement needed by the state and save the taxpayers huge sums of money. This had the desired effect for, although there was no change in the method of bidding, the state did succeed in obtaining a reduction in the price quoted.

It is unfortunate that the cement manufacturers allowed themselves to be so easily intimidated. Their desire for sales naturally was great, but in accepting the situation created by the state they turned their backs on one of the cardinal principles for which cement makers had long been striving, even before approval of the cement industry's code had made selling at prices above the cost of production mandatory upon them.

What is more important, the effects of their defeat continue to run against them, for the success of the political manœuvering which the state employed has led the City of Chicago to embrace similar methods. Because cement manufacturers are not allowed by the provisions of their code to sell direct to municipalities, the city has been asked to pay more for cement than either the state or the counties to which direct sales can be made. By direct buying the state obtains cement for $1.85 a barrel, whereas the city has received no bid lower than $2.00, a difference of 15 cents. The Chicago city council's finance committee is concerned about the size of this differential—although there is no record of its having inquired into the justification for it—and a subcommittee has been named to investigate this and other discriminations attributed to the operation of N. R. A. codes affecting the purchase of coal and lumber as well as cement. As a final stroke in the gentle art of persuading the cement makers of the error of their ways, Commissioner of Public Works Oscar Hewitt has been instructed to ascertain the cost of building a municipal cement plant and to invite other Illinois cities to join in the enterprise.

We earnestly hope that this new threat of government competition with private enterprise will not have the result which city officials so confidently expect. That it is no more sincere than the one made by the state's officials is evident from the remarks of one of the aldermen who, in commenting on the proposal, said that "a similar threat by the state brought material price reductions." Public officials are basing their hope for success in beating down cement prices on the cement manufacturers' hunger for business and on the gullibility of the public, which is always ready to applaud the politician who cries loudly enough about economizing for the benefit of taxpayers. The building-material dealers who are prepared to sell the city the cement it needs are themselves large taxpayers and one might well wonder how they can be expected to meet their civic obligations in that respect if they are to be excluded from participation in the cement business of their own municipality. It is a strange reasoning that promises to ease the burden on the taxpayer and then seeks to lessen his ability to pay by depriving him of business which is generally conceded to be his by right.

By adopting a firm stand against the intimidation exercised by state and city officials through the threat of government competition the cement manufacturers will be doing themselves a lasting service, even though it may mean a temporary loss of business. It will have the effect of encouraging similar action on the part of other producers of materials for government use and may be the means of terminating what will otherwise become a public disgrace. Political machines live only through the distribution of patronage among large sections of the voting public and road-building, whether municipal or state, has proved to be a very successful channel. As long as that condition exists, government divisions will not abandon such work, even though the cost of the materials needed for it may seem to be excessive.

# Lime Producers Discuss Problems at Annual Convention in Washington

## Association Proceedings Cut to One Day Because of Code Public Hearing

THIS year, as in 1933, the annual convention of the National Lime Assn. was restricted, by the overbearing importance of lime-code problems, to a one-day session. A program planned for two days to be devoted to association affairs and a third day given up to a discussion of code administration and operation had been scheduled for the Edgewater Beach Hotel in Chicago, May 23 to 25. However, announcement by the National Recovery Administration of a public hearing on the lime code to be held in Washington on one of these days necessitated a hurried change in plans and the transference of the convention to Washington for a one-day meeting at the Wardman Park Hotel on May 22, a one-day conference of the lime industry on May 23, and the N.R.A. public hearing on May 24.

Norman G. Hough, president and general manager of the National Lime Assn.

In the process of compressing a two-day program into a single day's sessions four subjects, considered of outstanding importance to lime manufacturers, were allowed to stand for full discussion. These were mortar research, agricultural lime, accident prevention and water softening. These topics were thought to be of deep interest to the lime industry at a time when the development of new markets and the recovery of old ones are essential to that industry's stability and permanence.

Speaking on *The Potential Value of Completed Mortar Research*, L. A. Palmer, since March of this year a member of the association's Construction Department, summarized the results of a decade of investigation of masonry problems carried on by him and culminating in three years' work at the Bureau of Standards at Washington supported by lime, face-brick, masonry-cement and Portland-cement manufacturers. This research work, now completed and to be reported in the May issue of the Bureau of Standards Journal of Research, has demonstrated, according to Mr. Palmer, the superiority of mortars rich in lime when compared with mortars composed of competitive and less suitable materials. He talked of the importance of dry walls in buildings and of the relative importance of mortars and building units in the provision of better masonry.

Efflorescence, he pointed out, is a symptom of an excessive degree of saturation in a wall and in order to prevent it one must prevent the entrance of water into the wall. Property owners, building contractors and the brick industry are interested in providing better masonry, but this can only be done, Mr. Palmer said, by using lime mortar or mortars having qualities approaching those of lime mortar. All are agreed that buildings must not leak. We should have sound walls because we have better brick and better cementing materials than ever before.

An adaptable mortar, as Mr. Palmer sees it, is one which is suitable for use with a diversity of building units and an adaptable unit, one which gives good results with a variety of mortars. It is impossible, he has found, to regulate the range in the rate of water absorption by bricks within sufficiently narrow limits to insure good masonry, so the builder must rely on the qualities of the mortar.

Water-tight walls, he says, have all their joints full and the bricks and the mortar are securely attached at all their points of contact. In a water-tight wall the rate at which the bricks absorb water and the rate at which the cementing material loses water will be nearly the same. The water-retaining capacity of the mortar is also an index to workability.

In an ideal wall, according to Mr. Palmer, the mortar will adhere to the bricks with such intensity that the bond strength will at least equal the tensile strength of the mortar. The intensity of adhesion of the mortar to the bricks can not be too great. Failures in brickwork occur in the mortar and not at the point of attachment, if that mortar is rich in lime. The bonding power and the water-retaining capacity of a mortar are closely associated. A mortar having low volume changes subsequent to hardening is, of course, desirable.

Masonry, says Mr. Palmer, must be strong, but this means more than strong brick and strong mortar; it means also a strong bond. Low water-retaining capacity in the mortar is associated with strength. A water-tight wall is strong because it has integrity.

Mr. Palmer objects to the use of laboratory freezing and thawing tests in the appraising of mortars.

He contends that it is useless to subject dry masonry to such tests since frost resistance is of little consequence in a dry wall.

Lee S. Trainor, chief engineer of the association's Construction Department, added to Mr. Palmer's remarks by saying that all investigators are in fairly close agreement on the necessity of using a mortar having a high lime content. The association advocates the use of a 2:1:9 mortar, in which the figures represent the relative proportions of lime, cement and sand respectively. Local conditions may require different relative quantities of sand, ranging in different localities from 7 to 10 and even 11, but the lime-cement ratio must be kept at 2:1.

In Mr. Trainor's opinion the lime industry must look to the erection of small dwellings rather than large buildings, such as hotels, apartments, etc., for its lime-mortar market. With an existing need for 800,000 one-family dwellings and the probable enactment of proposed federal legislation of the type represented by Senate Bill 3,603 and House of Representatives Bill 9,620 the lime industry has much to encourage it in the small-home field. The bills mentioned are designed to relieve conditions in the building field by providing government security for private loans made to builders.

In response to a question asked by Irving Warner (vice-president, Warner Co., Philadelphia, Pa.) respecting the shrinkage of masonry away from the spandrel beams of tall buildings. Mr. Trainor said that some builders have eliminated these beams on account of the difficulties encountered through shrinkage, and that this is feasible because a brick wall of the load-sustaining type can be built to a height of 20 stories satisfactorily. Well-burned bricks do not expand or contract appreciably and negligible changes take place in hardened mortar. This explanation was prompted by Mr. Warner's suggestion of using expansion joints, as in concrete-highway construction, at the spandrel beams.

Changes in mortar volume, Mr. Trainor explained, are due to three causes: (1) Loss of water through its absorption by the bricks, (2) shrinkage during hardening, and chiefly (3) to alternate wetting and drying after hardening. Lime mortar, he added, compacts least but shrinks most in hardening.

To this Mr. Palmer added the information that mortar shrinkage is of two kinds: (1) That which occurs during the first 30 sec. after application and acts in a direction perpendicular to the plane of the surface of adhesion, and (2) that which occurs during the remainder of the first day. In the case of a porous brick wall Portland-cement mortar undergoes much greater shrinkage than a 2:1:9 lime mortar.

The effects of the "new deal" on the market for agricultural lime were discussed by Henry A. Huschke, manager of the Agricultural Department of the lime association. He reminded his hearers of the fact that national farm income in 1932 fell to the astonishing figure of $5,000,000,000 the lowest on record since 1909. This sharp decline had been attributed, he said, to overproduction, underconsumption, and a shrinkage of foreign-trade, and the trend of events following the application of the Agricultural Adjustment Administration has shown that the diagnosis was correct. As a result of the production-control methods voluntarily embraced by cotton growers their crop in 1933 was worth $423,000,000, or 101 per cent. more than the crop of the year before.

Mr. Huschke displayed a chart showing the trend of farm prices and commodity prices during recent years and pointed out the extent to which farm prices have sagged below commodity since 1921. By another chart he showed the close parallelism that always exists between farm income and industrial workers' income. He pointed out the probability, or the near certainty, that the lead to recovery set by farm income, which increased 24 per cent. in 1933 above the level of 1932, will be followed by that of industrial workers as inevitably as the latter has accompanied the farmer in the up-and-down movements of former years. In the present and future expansion of farm income lime manufacturers can expect to share, not alone because of the possession of greater purchasing power


## NATIONAL LIME ASSOCIATION
### 1934-1935

**OFFICERS**

NORMAN G. HOUGH, *President and General Manager*
W. V. BRUMBAUGH, *Secretary and Assistant Treasurer*
ROMA F. MEDFORD, *Assistant Secretary*
RALPH P. WILTON, *Treasurer*
Wrightsville, Pa.

**EXECUTIVE COMMITTEE**

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REED C. BYE, Philadelphia, Pa.
J. M. GAGER, Chattanooga, Tenn.
G. J. WHELAN, Cleveland, O.
S. WALTER STAUFFER, York, Pa.

**BOARD OF DIRECTORS**

*District 1*
C. C. LOOMIS, Adams, Mass.

*District 2*
S. W. STAUFFER, York, Pa.

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*District 4*
JAMES H. MCNAMARA, Eagle Rock, Va.

*District 5A*
G. J. WHELAN, Cleveland, O.

*District 5B*
RUSSELL RAREY, Columbus, O.

*District 6*
(Not yet elected)

*District 7*
G. H. P. JOHANNES, St. Louis, Mo.

*District 8*
(Not yet elected)

*District 9*
HENRY LA LIBERTE, Duluth, Minn.

*Districts 10 and 11*
F. C. CHENEY, Birmingham, Ala.

*District 12*
J. F. POLLOCK, Kansas City, Mo.

*District 13*
CECIL R. HADEN, Houston, Tex.

*District 14*
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*District 15*
R. E. TREMOUREUX, San Francisco

by the farmer but also because of the increased likelihood of his treating well the land he uses while he withdraws other acres from cultivation.

On the cost of the A.A.A. program Mr. Huschke quoted figures showing that the A.A.A. had expended $181,000,000 by the end of 1933 and that, by the same date, processing-tax collections had returned $140,000,000 to the government. The difference of $40,000,000, he explained, represented the amount by which collections lagged in point of time behind advances.

The fact that the lime industry has been relatively indifferent to the problem of accident prevention was brought home to those present by the address of Paul Hatmaker, the association's statistician, who spoke on *The Dollar and Sense Value of Accident Prevention.* Mr. Hatmaker, who was until his recent appointment to the National Lime Assn. staff associated with the Bureau of Mines in Washington, has made an investigation of the compensation-insurance rates in effect throughout the country. As these affect the lime industry they range from $4.33 per $100 of pay-roll in Alabama to $9.70 in New York. In all states where there is a differential between the rate for lime plants and that for cement plants the lime rate is much higher.

The justification for this disparity is to be found, as Mr. Hatmaker pointed out, in the high accident rate of the lime industry when compared with that of the cement industry. The lime industry's accident rate, which had declined from 1929 to 1931, rose sharply from 1931 to 1933, in which year it was higher than that of the quarrying, iron-ore-mining and cement industries. The good showing of the cement industry Mr. Hatmaker attributed to the aggressive accident-prevention campaign that has been carried on consistently and continuously by the Portland Cement Assn. He advocated the adoption of a similarly effective program by the lime industry. That accidents can be reduced in number and severity was disclosed by an investigation conducted among large and small lime plants. Over 40 per cent. of these plants had experienced no lost-time accidents in 1933. Large and small plants suffer about the same in their accident experience.

The opportunities for the sale of lime for water treatment seemed more important after John W. Stockett, of the association's Chemical Department, had discussed a proposed water-softening campaign. The consumption of lime used for water treatment rose from 80,000 tons in 1918 to 140,000 tons, he said. To soften 1,000,000 gal. of water—that is to reduce the number of its hard parts to 75 in 1,000,000—requires 10.7 lb. of lime. It is estimated that in towns of 10,000 population or more the daily water consumption per capita is approximately 100 gal. The fact that in 1930 the water of only 134 municipalities was being softened gives some indication of the field yet to be developed. Water having 75 parts per 1,000,000 is suitable for drinking, but may not be economical for industry.

There are nine states—Arizona, Florida, Illinois, Indiana, Iowa, Kansas, Nebraska, Oklahoma and South Dakota—in which the hardness of the water available for municipal supply ranges from 201 to 500 parts per 1,000,000. In thirteen other states—Arkansas, California, Colorado, Michigan, Minnesota, Missouri, New Mexico, North Dakota, Ohio, Texas, Utah, Wisconsin, Wyoming—the hardness ranges from 101 to 200 parts per 1,000,000. To soften to 75 parts per 1,000,000 the hard-water used in the towns of 10,000 or more people in these twenty-two states would require 900,000 tons of lime annually, Mr. Stockett thought. Soft water offers many advantages to the householder, according to him, in reduced expense for soap, the elimination of stains in plumbing fixtures and of incrustations in water pipes.

As an example of the need for lime for water softening Mr. Stockett cited the case of Milwaukee's sewage treatment plant which will use lime and which can be converted into a water-softening plant. In the latter capacity it would require from 13,000 to 15,000 tons of lime annually. Chicago's filtration plant will require from 35,000 to 40,000 tons of lime annually to reduce, from 115 to 50 parts per 1,000,000, the hardness of its water during the six months of each year in which the need for combating microörganisms is greatest.

Norman G. Hough, president and general manager of the association, in hurriedly reviewing conditions in the industry, said that lime manufacturers are "basking in the sunshine of a new day." When unfair practices are eliminated, he declared, a new efficiency in merchandising will be required. The industry's greatest needs, he believes, are "a new enthusiasm and a new courage."

During the years 1925 to 1929 the lime industry lost 700,000 tons of production in the mortar field due to the incursion of competitive materials, Mr. Hough pointed out, and with the new evidence developed by Mr. Palmer a determined effort to regain this tonnage should be made. He believes that the possibilities for selling lime in the field of underground pipe-lines as a corrosion preventive are deserving of special study. Of the 250,000 mi. of pipe-lines in the United States 12,500 mi., or 5 per cent., must be replaced each year. The adoption of an accident-prevention program will, in his opinion, return in reduced insurance premiums more than enough to defray the total cost of the Association.

In the accompanying table are given the names of the newly-elected officers and directors of th association.

The association's by-laws were changed in several particulars. Sec. 2 of Article IV, dealing with the election of the board of directors, has been altered to include the District of Columbia within District 2, which embraces New Jersey, Delaware, Maryland, and that part of Pennsylvania east of the 77th meridian.

The State of Ohio, formerly known as District 5, has been divided into two districts:

District 5-A. The hydrated finishing-lime industry located in the State of Ohio, comprising such plants and factories as may be designated from time to time by the Finishing Lime Assn. of Ohio.

District 5-B. Ohio, except the hydrated finishing-lime plants included in District 5-A.

# Lime Industry Holds Public Hearing on Proposed Changes in Code

## Ohio Lime Men Claim Code Authority is Not Representative of Industry

TWO proposals for changes in the operation of the lime industry's code of fair competition, recently submitted to the National Recovery Administration, resulted in a call for a public hearing which was held at the Wardman Park Hotel, Washington, on May 24 and 25 and for a conference of the industry held there on May 23.

One of these proposals, offered by a group of eastern lime manufacturers representing about 20 per cent. of the industry's total tonnage, asked for certain amendments to the existing code. The other, in reality a complaint, was filed by lime manufacturers of Ohio, and charged that the Code Authority set up under the code was not representative of the lime industry as required by the provisions of the National Industrial Recovery Act.

The amendments proposed by the eastern group affected every article and practically every section of the existing code and involved such extensive changes in certain parts as to constitute in effect a new code. These suggestions, drafted as of Mar. 17, 1934, were considered at a meeting of the Code Authority held in Washington May 1 and 2, when a committee, consisting of C. C. Loomis, Reed C. Bye, Fred Witmer, Russell Rarey, John H. Pollock, and Cecil Haden, was appointed to study the proposals and make recommendations. On May 15 this committee met in Pittsburgh and were joined by a committee representing the manufacturers of Ohio, now designated as Districts 5-A and 5-B. The two committees prepared a set of amendments known as the "May 10 document" which was presented, together with additional changes suggested at the May 21 meeting of the Code Authority, to the conference of the industry on May 23.

At the opening of this conference L. E. Johnson, secretary of the Finishing Lime Assn. of Ohio and of the District Control Committee of District 5-A and spokesman for the manufacturers of both District 5-A and District 5-B, said that manufacturers of these two districts had met in Toledo on May 18 and had discussed the proposed amendments. They believed, he averred, that the code had "done a great deal for the industry" and that it would be wise to retain its good features. As an expression of their views he presented a resolution which asked that the existing code be allowed to stand in its original form and that whatever changes might be thought desirable should be made in the form of executive orders or rulings by the Administrator. He explained that the Ohio manufacturers for whom he spoke were reluctant to have the code opened for re-examination as they believed that many of its most valuable provisions might be lost in view of policies adopted by the N.R.A. since the lime code had been approved. He said, "No lime manufacturer has ever seen the lime industry in such good condition as to-day" and he attributed this to the operation of the lime code.

Mr. Johnson represented the following Ohio lime manufacturers who joined in presenting the resolution he offered:

Gibsonburg Lime Products Co., Gibsonburg, O.
Herzog Lime & Stone Co., Forest, O.
Kelley Island Lime & Transport Co., Cleveland, O.
Marble Cliff Quarries Co., Columbus, O.
Mohrs Lime Co.
National Gypsum Co., Buffalo, N. Y.
National Lime & Stone Co., Findlay, O.
National Mortar & Supply Co., Pittsburgh, Pa.
Ohio Hydrate & Supply Co., Woodville, O.
Scioto Lime & Stone Co., Delaware, O.
United States Gypsum Co., Chicago, Ill.
Woodville Lime Products Co., Toledo, O.

On his request a committee, consisting of Messrs. Deely, Bye, Gager, Urschel, Mack, Davis and Reaney, was appointed to consider the resolution. After a session lasting most of the day the committee's chairman, Mr. Reaney, presented, in lieu of a report, a suggestion which, he said, represented the most that the committee had found acceptable to all its members. As the statement presented no solution of the problem assigned to the committee it was filed and no further action could be taken.

On the subject of the complaint with respect to the fairness of the representation of the industry shown by the composition of the Code Authority the conference showed practically the same division as on the proposed amendments. On behalf of the Ohio manufacturers Chas. Price and W. C. Davis, both of the United States Gypsum Co., pointed out the manner in which the Code Authority had been chosen and claimed that, inasmuch as no lime manufacturer not a member of the National Lime Assn. could be chosen as a member of the Code Authority or even vote for the selection of any nominee for such a position, that body could not possibly be representative of the entire industry. Outside their own group the Ohio manufacturers did not arouse much sympathy for the point of view they had advanced.

The proposed amendments submitted by the eastern manufacturers and offered to the conference as the recommendation of the Code Authority were considered *seriatim* by sections, to each of which the Ohio group offered a negative vote consistently in keeping with their unwillingness to have the code

opened by N.R.A. It was their hope that, by winning support for their view and proffered resolution, they could cancel the public hearing scheduled for the following day. However, the amendments were adopted and by a vote which, while it varied somewhat from section to section, averaged close to 4 to 1 in numbers and 3 to 1 in tonnage of production.

The public hearing opened on the following day, May 24, with Assistant Deputy Administrator Ralph Fogg in the chair. Assisting him were Deputy Administrator C. L. Hickling, Col. A. C. Vorhis, administration representative on the Code Authority of the lime industry, and the following advisers:

E. L. Culver—Consumers' Advisory Division
S. R. March—Research and Planning Division
J. M. Gallagher—Legal Advisory Division
John Goshie—Labor Advisory Division
G. F. Ashley—Industrial Advisory Division

The proposed amendments were considered in order, section by section, and encountered no serious objection until the labor provisions were reached, when John Goshie, the N.R.A. labor adviser, took exception to the 40-hr. average week set out in Art. II, Sec. 2. Although this provision appears in the existing code, the National Recovery Administration, in its action on codes proposed since the approval of the lime code last October, has disapproved all attempts to average the hours of labor. Exception was also taken to the inclusion of watchmen in the enumeration of those classes of labor exempted from the maximum-hours provision. Both subjects will be discussed in a post-hearing conference between the N.R.A. and the industry's representatives.

Proposals to include Kentucky in the southern wage-scale area of 30 c. an hr. and to rearrange the wage-scale areas in Virginia and West Virginia were referred to committees for recommendations.

Paragraph 3 of Sec. 3, dealing with the rates of pay for infirm workers, will be revised to conform to N.R.A. recommended practice. The N.R.A. representatives suggested that the age limit for child labor be raised from 16 to 18 years in hazardous occupations.

When the discussion reached Art. III, *Marketing*, Assistant Deputy Administrator Fogg said that the Administration "frowns" on weighted average costs. Sec. 2 of the proposed amendments, titled *Methods of Selling*, sets up elaborate provisions for the establishment of weighted average district costs, basing points, price-publication machinery, and merchandising plans. The N.R.A. advisers, particularly J. M. Gallagher of the Legal Advisory Division, objected to the new provisions, which are considerably broader and more detailed than those of the existing code, on the ground that they may have the effect of fixing prices and oppressing small manufacturers. All these questions were deferred to the post-hearing conference for further discussion.

The *Cost Formula for the Lime Industry*, presented as Schedule C to be used for the determination of average weighted costs, may be altered. S. R. March, Research and Planning Division representative, said that he might ask for the elimination of all items listed under *Lime-Plant Overhead* at the post-hearing conference.

The price-publication provisions (Art. III, Sec. 2c) of the proposed amendments contain some interesting requirements, among which are the following.

For the marketing area in which the manufacturing plant is located, or for any destinations beyond the marketing area, the basing-point minimum prices, terms and conditions of sale for each of the products manufactured and offered for sale shall be published by each manufacturer. The delivered price of each lime product shall be not less than the sum of the price filed for that product, as herein provided, and basing rail freight rate from the basing point at which the price is filed.

However, nothing herein contained shall prohibit any manufacturer from publishing a statement that his minimum prices for any destination in marketing areas other than the one in which his plant is located, shall be not less than, and the terms and conditions of sale not at variance with, the well-established market prices, terms and conditions of sale on products of a similar grade and quality, published f.o.b. basing point by manufacturers whose plants are located within such marketing area, plus basing-point rail freight rate.

Minimum prices, terms and conditions of sale for de-

**CODE AUTHORITY OF THE LIME INDUSTRY**
(This is also the Trade Relations Committee of the National Lime Assn.)

| District | Member of Code Authority | Association Connection: Member of Board of Directors | Association Connection: Member of Executive Committee | Company |
|---|---|---|---|---|
| 1 | **Industry Representatives:** C. C. Loomis | × | | New England Lime Co., Adams, Mass. |
| 2 | Reed C. Bye | | × | Warner Co., Philadelphia, Pa. |
| | S. W. Stauffer | × | × | J. E. Baker Co., York, Pa. |
| 3 | E. C. Mathias | × | | Washington Building Lime Co., Baltimore, Md. |
| | H. D. Brigstocke | × | | Chemical Lime Co., Bellefonte, Pa. |
| 4 | James H. McNamara | × | | Eagle Rock Lime Co., Eagle Rock, Va. |
| 5A | G. J. Whelan | × | × | Kelley Island Lime & Transport Co., Cleveland, O. |
| 5B | Russell Rarey | × | | Marble Cliff Quarries Co., Columbus, O. |
| 6 | (Not yet elected) | | | |
| 7 | G. H. F. Johannes | × | | Glencoe Lime & Cement Co., St. Louis, Mo. |
| | B. L. McNulty | | × | Marblehead Lime Co., Chicago, Ill. |
| 8 | (Not yet elected) | | | |
| 9 | Henry La Liberte | × | | Cutter-Magner Co., Duluth, Minn. |
| 10, 11 | F. C. Cheney | × | | Cheney Lime & Cement Co., Birmingham, Ala. |
| | J. M. Gager | | × | Gager Lime Mfg. Co., Chattanooga, Tenn. |
| 12 | J. F. Pollock | × | | Ash Grove Lime & Portland Cement Co., Kansas City, Mo. |
| 13 | Cecil R. Haden | × | | Haden Lime Co., Houston, Tex. |
| 14 | John S. McMillin | × | | Roche Harbor Lime & Cement Co., Roche Harbor, Wash. |
| 15 | R. E. Tremoureux | × | | United States Lime Products Co., San Francisco, Cal. |
| | **Government Representative:** Col. A. C. Vorhis | | | War Dept., Washington, D. C. |

livery via motor truck may be published either f.o.b. manufacturing plant, or delivered, or both.

It shall be an unfair method of competition for any manufacturer: (1) To sell, or offer for sale, lime at less than his minimum prices, or at variance with the terms and conditions of sale field as herein provided; (2) to file prices, terms and conditions of sale not as a *bona fide* expression of business policy, but merely for the purpose or with the effect of discriminating between different purchasers of a like class of industry products; or (3) to deviate from any of the provisions of this section.

For Sec. 3, dealing with commercial bribery, the N.R.A. will suggest a new paragraph of standard form and content.

The new provisions defining jobbers, distributors, brokers and agents, and regulating transactions with them and making them subject to lime-code provisions met some question on the part of N.R.A. officials on account of the fear that they might be aimed at maintaining resale prices. Action on this point was deferred to the post-hearing conference.

Art. V, *Administration*, provoked the greatest amount of discussion, as it did at the industry conference, because of the charge directed at the method of selecting the members of the code authority provided in Sec. 1. The N.R.A. officials evinced a great interest in the distribution of Code Authority members among the various districts. The Administrator in charge elicited the information that, while Districts 3, 4, 5-B, 6, 9, 12, 13, 14 and 15 have one Code authority member apiece, Districts 1, 7 and 10-11 (which are combined to form a single district) have two each. In District 2 there are three members and in District 5-A one member with two votes.

The Ohio manufacturers contended that the Code Authority could not be fairly representative of the industry, since its membership is limited to members of the National Lime Assn., whose members

(*Continued on page 36*)

## Registration

Attendance at Lime Industry Conference (May 23) and National Lime Assn. 16th Annual Convention (May 22) at Washington, D. C. (An * indicates a person registered at both the conference and the convention, a † one registered at the conference only, and a ‡ one registered at the convention only.)

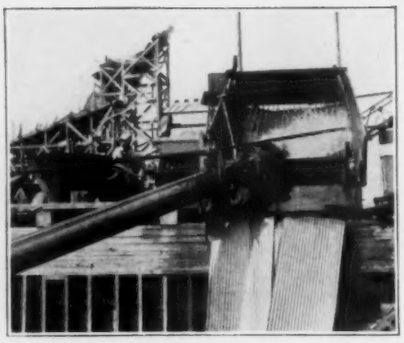
MANUFACTURERS

† Ackerman (James H.), Lawrence Portland Cement Co., Northampton, Pa.
* Baker (Daniel, Jr.), Washington Building Lime Co., Baltimore, Md.
* Brewer (H. D.), Champlain Valley Lime Co., Worcester, Mass.
† Bridgewater (H. S.), Superior Lime & Hydrate Co., Pelham, Ala.
* Brigstocke (H. D.), Chemical Lime Co., Bellefonte, Mass.
* Brookman (H. R.), United States Lime Products Corp., San Francisco, Cal.
* Brownson (W. C.), North American Cement Corp., Albany, N. Y.
* Bye (Reed C.), Warner Co., Philadelphia, Pa.
* Chamers (J. F.), Herzog Lime & Stone Co., Forest, O.
* Cheney (F. C.), Cheney Lime & Cement Co., Birmingham, Ala.
* Chiles (J. H.), Austin White Lime Co., Austin, Tex.
† Corson (Philip L.), G. & W. H. Corson, Inc., Plymouth Meeting, Pa.
* Couchman (A. R.), North American Cement Corp., Albany, N. Y.
† Cross (S. P.), Woodville Lime Products Co., Toledo, O.
* Davis (W. C.), United States Gypsum Co., Chicago, Ill.
* Deely (J. M.), Lee Lime Corp., Lee, Mass.
‡ Dreisbach (Edward E.), Standard Lime & Stone Co., Baltimore, Md.
† Drechsler (Ivan R.), Pine Hill Lime & Stone Co., Baltimore, Md.
† Dunning (A. R.), Strasburg Lime Co., Inc., Strasburg, Va.
† Egan (B. N.), Pine Hill Lime & Stone Co., Baltimore, Md.
* Feiser (J. P.), LeGore Lime Co., LeGore, Ind.
* Gager (J. M.), Gager Lime Mfg. Co., Chattanooga, Tenn.
‡ Garvin (W. D.), Washington Building Lime Co., Baltimore, Md.
‡ Graham (Wm. A.), Massillon Coal & Lime Co., Massillon, O.
* Greenland (E. C.), Blair Limestone Co., Pittsburgh, Pa.
* Gruber (John F.), North American Cement Corp., Albany, N. Y.
* Haden (Cecil R.), Haden Lime Co., Houston, Tex.
† Herder (R. F.), International Paper Products, Inc., New York, N. Y.
† Hoehler (H. G.), Universal Gypsum & Lime Co., Chicago, Ill.
* Hunkins (D. S.), Peerless White Lime Co., St. Louis, Mo.
* Johannes (G. H. F.), Glencoe Lime & Cement Co., St. Louis, Mo.
‡ Keeney (C. C.), LeGore Lime Co., LeGore, Ind.
* La Liberte (Henry), Cutler-Magner Co., Duluth, Minn.
‡ LeGore (Marlin), LeGore Lime Co., LeGore, Ind.
* LeGore (W. C.), LeGore Lime Co., LeGore, Ind.
‡ LeGore (Wilbur C.), LeGore Lime Co., LeGore, Ind.
* Liebscher (A.), Dittlinger Lime Co., New Braunfels, Tex.
† Loomis (C. C.), New England Lime Co., Pittsfield, Mass.
* Mack (A. B.), Kelley Island Lime & Transport Co., Cleveland, O.
* Mathias (E. C.), Washington Building Lime Co., Baltimore, Md.
* McMillin (John S.), Roche Harbor Lime & Cement Co., Roche Harbor, Wash.
* McNamara (James H.), Eagle Rock Lime Co., Eagle Rock, Va.
* McNulty (Bernard L.), Marblehead Lime Co., Chicago, Ill.
† Maslin (Robert S.), Pine Hill Lime & Stone Co., Baltimore, Md.
† Mast (V. F.), Western Lime & Cement Co., Milwaukee, Wis.
† Montgomery (C. L.), Vermarco Lime Co., West Rutland, Va.
‡ Murray (J. A.), Warner Co., Philadelphia, Pa.
‡ Noll (Ray C.), Whiterock Quarries, Bellefonte, Pa.
* O'Connor (Donal), Hoosac Valley Lime Co., Inc., Adams, Mass.
* Palmer (W. M.), Dixie Lime Products Co., Ocala, Fla.
* Paxton (Wm.), Rockdale Lime Co., Inc., Linville, Va.
† Penn (Charles T.), Indiana Limestone Corp., Bedford, Ind.
* Pollock (John F.), Ash Grove Lime & Portland Cement Co., Kansas City, Mo.
† Porter (John J.), North American Cement Corp., Albany, N. Y.
* Price (C. M.), United States Gypsum Co., Chicago, Ill.
* Purnell (G. I.), American Lime & Stone Co., Bellefonte, Pa.
* Rarey (Russell), Marble Cliff Quarries Co., Columbus, O.
† Reaney (W. A.), Scioto Lime & Stone Co., Delaware, O.
* Schmoeller (C. C.), Mississippi Lime & Material Co., Alton, Ill.
* Shallcross (S. M.), American Lime & Stone Co., Bellefonte, Pa.
† Smith (L. R. H.), Mercer Lime & Stone Co., Mercer, Pa.
† Smith (S. S.), Mercer Lime & Stone Co., Mercer, Pa.
‡ Snead (S. C.), Kimbalton Lime Co., Inc., Shawsville, Va.
† Spellman (Charles), Chester Valley Lime & Products Co., West Chester, Pa.
* Stauffer (S. Walter), J. E. Baker Co., York, Pa.
* Tremoureux (R. E.), United States Lime Products Corp., San Francisco, Cal.
† Tyree (Alexander M.), North American Cement Corp., Albany, N. Y.
† Urschel (J. J.), Woodville Lime Products Co., Toledo, O.
* Walker (Robert S.), Chemical Lime Co., Bellefonte, Pa.
‡ Walsh (Edward), Round Rock White Lime Co., Round Rock, Tex.
‡ Warner (Irving), Warner Co., Philadelphia, Pa.
* Williams (Harold), Williams Lime Mfg. Co., Knoxville, Tenn.
‡ Wilson (J. G.), Warner Co., Philadelphia, Pa.
† Wilton (F. M.), Steacy & Wilton Co., Wrightsville, Pa.
‡Wilton (R. P.), Steacy & Wilton Co., Wrightsville, Pa.
* Wood (Geo. B.), Rockland & Rockport Lime Co., Rockland, Me.
† Wood (F. S.), Chester Valley Lime & Products Co., West Chester, Pa.

ASSOCIATION GUESTS

* Benish (E. M.), Secretary, District Control Committee, Districts 7-12, St. Louis, Mo.
* Covert (H. S.), Secretary, District Control Committee, Districts 4, 10-11, Knoxville, Tenn.
* Ford (Burton A.), Valve Bag Co., New York, N. Y.
† Fryer (James), Wisconsin Lime Manufacturers Assn.
† Hagerman (W. H. S.), Edwin A. Smith & Son.
* Johnson (L. E.), Secretary, District Control Committee, Districts 5A-5B, Toledo, O.
† Kent (Paul G.), Hammond Bag & Paper Co., Wellsburg, W. Va.
* Lee (Franklin S.), Secretary, District Control Committee Districts 2-3, Philadelphia, Pa.
* Noll (Mrs. Ray C.), Bellefonte, Pa.
* Phillips (Stanley A.), PIT AND QUARRY, Chicago, Ill.
* Phillips (Mrs. S. A.), Chicago, Ill.
* Rockwood (Nathan C.), *Rock Products*, Chicago, Ill.
‡ Shallcross (Mrs. S. M.), Bellefonte, Pa.
* Tremoureux (Mrs. R. E.), San Francisco, Cal.
† Voris (Col. Alvin C.), National Recovery Administration, Washington, D. C.

Main belt conveyor to top of screening building. Stock-piling conveyor at right.



Dredge pipe line discharging to sloping grizzly. Perforated bucket elevator at left.

The gasoline crawler crane with 1-cu.yd. bucket which reclaims from stockpiles.

# New Gravel Plant in Alabama Sells Most of Product to Industrial Markets

## Dredge Pipe Line Suspended by Cable Over Creek Current to Prevent Damage

THE territory in and around Selma, Ala., has for many years supplied much of the sand and gravel used in the Birmingham territory. Recent developments have increased the productive capacity of this section and its importance as a center of sand-and-gravel production. This condition is largely due to the activities of the American Gravel & Sand Co., which operates a new plant at Plantersville, Ala., 18 mi. north of Selma.

This company's first plant on this site went into operation in September, 1932. A dragline cableway system of excavation was used to supply material to the plant which used revolving screens for sizing of the product. This system was later found to be unsuited to the existing conditions and another new plant was erected alongside the first which uses vibrating screens and a hydraulic dredge. This plant has a capacity of 150 tons per hr. and went into operation early in the summer of 1933.

The sand and gravel in the deposit at this location has a silica content of 98.8 per cent., and contains .81 per cent. oxide of iron and .18 per cent. alumina. Because of the high silica content this material is much in demand for steel-mill operations in the Birmingham territory which form one of the chief markets for the product of this plant. Other products include all grades and sizes of concrete gravel, concrete and masons' sand, furnace and asphalt sand and clay gravel for road work. The latter consists of washed gravel which is loaded to cars together with clay which is handled by crane from a nearby pit. Moulding sand is also obtained from another pit on the company's property.

The surface deposit on the bank of Mulberry Creek varies from 20 to 30 ft. above normal water level. The overburden averages less than 2 ft. in thickness and is caved in with the gravel. The deposit is about 65 per cent. sand and is well graded, less than 1 per cent. of the gravel being over 2½ in. in size. The dredge digs to a depth of about 30 ft. and is swung in an arc of about 500 ft. radius from the dredge shore-line. It has never been found necessary to move the dredge out of this area as the creek continually renews the deposit, especially during periods of high water. The only difficulty en-

The new plant in center with former revolving screen plant at the right.

The dredge with part of pipe line suspended from cable between creek banks.

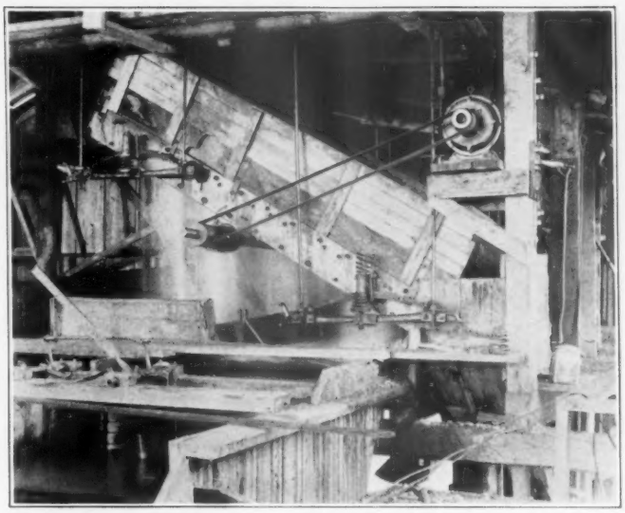
countered is due to a layer of compacted clay and sand several inches thick about 10 ft. below water level. This layer is loosened by blasting. Eight or ten sticks of dynamite tied together with a cap and 8-in. fuse, which are protected with soap, are thrown from the bank. Tests made on this deposit showed good gravel to a depth of 52 ft. and other tests made in the vicinity indicate a much greater depth.

The dredge has a 24-ft. by 36-ft. electric-welded steel hull with a timber and corrugated metal superstructure. A plain suction nozzle 30 ft. long is supported from an A-frame. The dredge pump is a 10-in. Caldwell Machine & Foundry Co. unit which is belt-driven by a 150-hp. General Electric motor. A 3-drum Lidgerwood hoist, driven by a 15-hp. motor operates the suction intake and the two shore-lines. About half of the 300-ft. dredge-line is supported on steel barrel floats while the balance is suspended from a 1½-in. Leschen steel cable strung between the plant and the opposite creek bank. This arrangement bridges the swift current of the creek and prevents damage from driftwood.

The dredge-line discharges at an elevation of about 30 ft. above water level over a 2½-in. sloping grizzly made of steel bars and spreader blocks. Any oversize is wasted and the material passing the grizzly goes to a sump. A Caldwell bucket elevator with perforated buckets reclaims from the sump to a small surge bin. This in turn discharges to a 20-in. Link-Belt belt-conveyor which elevates the material to the top of the screening plant.

The conveyor at present discharges by means of a split chute to two home-made double-deck vibrating screens using unbalanced weights and automobile springs. These have not worked out as well as expected and are to be replaced. These screens have ⅜-in. and ¼-in. wire cloth on their two decks. The gravel retained on the top decks can be chuted either direct to cars for shipment or to a 16-in. belt-conveyor on 100-ft. centers which is supported on a steel frame-work and discharges to a stock-pile of about 20,000-tons capacity. The pea gravel retained on the bottom decks of the screens can be chuted direct to cars or to stock-piles as desired.

View showing feed to main belt conveyor. Wash water pump house in background.



One of the two vibrating screens used in this plant. One of sand tanks in left foreground.

The sand passing the lower decks of these screens discharges to two No. 1 sand tanks which discharge to bins. The overflow from these tanks passes over two stationary screens with ⅛-in wire cloth. The No. 2 sand goes to bins and the balance to waste. Cars are loaded under these bins on a siding which connects with the Southern Ry. Connections to other roads allow shipments in all directions. A P & H No. 206 gasoline crawler crane with a 1-cu.yd. Browning clam-shell bucket is used to rehandle materials from stock-piles to cars for shipment and other purposes.

All possible precautions are taken to insure a clean product. Most of the silt is removed at the dredge discharge sump with its perforated elevator buckets and the remainder at the sand-settling tanks. Clay balls are picked out on the main conveyor, at the vibrating screens and in the cars. Wash water is supplied at 1,000 g.p.m. by a 6-in. Dean Hill centrifugal pump driven by a 30-hp. motor which is located in a pump-house on the bank of the creek above the plant. Electric power is stepped down from 11,000 v. to 220 v. for both plant and dredge motors. Lights have been installed for night operation.

The bucket elevator in this plant is driven by a 30-hp. motor, the main belt-conveyor by a 25-hp. Westinghouse motor and the screens by 5-hp. Valley motors. Link-belt conveyor idlers and pulleys and Quaker City conveyor belting are used. Leschen cable is used exclusively. A complete machine and repair shop takes care of all but major repair work. Equipment includes acetylene cutting and welding torches for which acetylene is supplied by a Carbonite generating set. The plant office has a laboratory in connection with it which is equipped with Tyler sieves, shakers, a Fairbanks scale and a stove for drying samples.

R. L. Lacey, who is in charge of operations and sales at this plant, has had considerable experience in the sand and gravel business. Before starting this plant he was for 9 years with the Southern Sand and Gravel Co., Selma, Ala.

# Continued Investigation Reveals the Benefits Accruing from Codes

## Approval of Permissive Areas and Open Price Policy Major Objectives

CONTINUING the policy of keeping readers informed of the latest developments in the mineral aggregates and related industries, especially with regard to the workings of the various codes in effect in those industries, one of PIT AND QUARRY'S editors was again sent on an extensive field investigation, this time through the Middle West. The investigation covered eight states included in four different code regions and included the sand and gravel, crushed stone, slag, industrial and silica sand, Portland cement, masonry cement and lime industries. The states included in this investigation were: Illinois and Indiana (which constitute Region 9); Wisconsin (in Region 10); Iowa and Nebraska (which constitute Region 12); and Missouri, Kansas and Oklahoma (which constitute Region 13). As on the previous trip through the South operators of large, small and medium-sized plants were contacted and testimony was obtained from producers, workers and consumers.

As this trip progressed it became increasingly evident that the various industries involved are benefiting by the codes and that most producers are satisfied with the results being obtained. Earlier in the year many producers expressed dissatisfaction with the hour and wage provisions of the code because of the increase in operating costs which had not yet been offset by any benefits to the producers themselves. Now that the open-price policy is in effect almost everywhere and indications are that permissive areas will also soon be effective, there is little complaint on this score. Almost without exception it was found that the open-price policy has stabilized prices at a level which permits a fair profit at a reasonable capacity. The recent belated lettings of highway contracts in many of the states contacted and increased business from other sources have improved conditions to such an extent that optimism is now quite general, even among producers who have not yet felt much actual benefit. In some of the states which have suffered most from the severe drouth private construction has shown a decided drop, but this condition is expected to be only temporary and will not have much effect on business in general. With open-price policies and permissive areas effective, the only things now considered necessary by most producers are uniform sales practice and accounting provisions.

A number of violations of the wage and hour provisions of the mineral aggregates code were reported, most of which were due to ignorance of these provisions and were voluntarily corrected as soon as discovered. According to reports the open price and other provisions are being observed and few violations have been found. Most obstinate violators capitulated immediately when they found their names left off the lists of code observers which are supplied regularly to highway officials and contractors. An interesting development was the manner in which rip rap producers flocked to sign up under the mineral aggregates code when they found that code observance was required to obtain government contracts.

*Hours and Wages.*—It becomes increasingly evident that the hour restrictions under the mineral aggregates code is working a greater hardship on employees than on employers. As in the South, producers freely admit that any increase in labor costs has been more than compensated for by higher prices. Most of them also experienced little difficulty in adjusting their operations to hour restrictions.

In the South, wage scales in most sections were so low that most workers are now earning considerably more in a 40-hr. week with a 25 c. or 30 c. minimum than they formerly did working twice as many hours per week. In the midwestern states, however, wages in many sections never had dropped below 30 c. or 35 c. per hr. and an increase to 40 c. only partly compensated for the reduction in working hours. Many producers believe that some adjustment of this condition will have to be made if the code is to succeed in its purposes.

One operator of a large gravel plant in Missouri has worked out most of the problems created by hour restrictions in a way that could well be emulated by other producers with considerable benefit both to their employees and themselves. This company operates one 8-hr. shift even when business is slow, stockpiling all excess production. With this reserve the addition of another shift will not be necessary unless there is a great increase in demand, in which case two 6-hr. shifts are operated. In the late Fall sufficient stockpiled material is stored to fill all demands until operations can be started again in the Spring. Most of the employees are kept busy during the non-productive season on maintenance and improvement work about the plant and in stripping enough of the deposit for the next year's operations. This producer believes that his greatest benefit from this system is the fact that he has been able to build up a picked high-class crew of workmen, most of whom have been with him for many years.

This same producer had been paying common labor 35 c. per hr. when the code went into effect with a minimum of 40 c. When workers in this class were raised 5 c. per hr. the same increase was given

to higher-paid skilled workers, although this was not mandatory under the code. This producer expressed his opinion that a minimum wage scale for skilled labor should be set by the code and another intermediate scale for semi-skilled labor.

Another operator of a large crushed stone plant keeps most of his help busy during the winter season stripping overburden and drilling blast-holes for the entire next season's operations. This system could well be emulated to some extent by many other operators.

That code hour restrictions have resulted in some increase in employment becomes more evident as business improves. This increase is not an impressive one as yet. One large operator of sand and gravel and crushed stone plants states that he is now employing 60 per cent. more men than he formerly required when operating at the same capacity.

*Unions.*—As far as can be ascertained at this time, few if any mineral aggregate plants have labor unions affiliated with the A. F. of L. Many producers have encouraged their employees to form their own company unions in which they pay no dues and in which they are not subject to calls to go on "sympathy" strikes with other unions in which they have no interest and with which they have no connection. Most of these companies pay wages higher than those specified by the codes and the men are aware that nothing more can be gained by affiliation with the A. F. of L.

The lime and cement industries in the territory covered, however, as was intimated in last month's article, have not fared so well. Local unions affiliated with the A. F. of L. have been formed in most of the cement plants contacted, but as yet have made no demands upon employers. The recent voluntary 10 per cent. wage increase made by most cement companies has brought the minimum wage scale far above code requirements and in most cases to a level equal to or above the scale of 1929, which was the former peak. Because of the nature of the work it is said that 20 per cent. of the employees in cement plants are rated as unskilled labor, the majority being classed as skilled or semi-skilled. In many plants also the highly-skilled labor, foremen, etc., are paid on a monthly basis and are employed the year round. These men also shared in the recent wage increase. Because of this fair treatment by employers little trouble is expected.

*Open Price.*—No definite information is available at this time on the areas in which the open-price policy is being observed. According to best advices most of the important aggregate producing and consuming sections of the Middle West are operating under open prices. In a few sections this policy is being followed temporarily through "gentlemen's agreements" among producers until official approval is obtained.

Producers in this territory were almost unanimously agreed that the open price is of benefit to them. In most cases it has brought prices to a level where a fair profit can be made and has stabilized them by practically eliminating price cutting. Full benefits have not become evident as yet, due mainly to the slow pickup in business. Another reason for this is that many large contracts entered into before the open-price policy was adopted are not yet completed. In another month or two these contracts will practically all have been filled. With the recent letting of large road contracts in many mid-western states increased business at better prices is expected.

*Permissive Areas.*—The recent approval of permissive areas for the state of California should have the effect of encouraging the other states to resume their efforts to compile complete presentations. A belief in some cases that such areas would never be approved by the Administration and pure lethargy in other cases resulted in many states in a complete cessation of efforts along this line. An interesting sidelight is the fact that many responsible portable plant operators who fought the permissive area clause when it was first submitted are now working for it because they find that the protection afforded them from irresponsible competition will more than make up for any disadvantages.

*Code Conflictions.*—In this territory most of the producers who operate under more than one code are aggregate producers who are also material dealers or ready-mixed concrete producers, or lime or cement producers who also produce aggregates. In neither case has any great difficulty been experienced in conforming to two or more codes, as the wage and hour provisions are the same in most cases.

*Government Competition.*—Competition by government and contractor-operated plants is still regarded as the chief barrier to an improvement of conditions in the mineral aggregate industries. In Iowa this condition seemed to be particularly bad. Counties in that state are operating many plants, most of which are operated with relief money, part of which is supplied by the state. The state operates no plants, but is said to buy or obtain options on deposits on which contractors can then bid to supply a job.

*Industrial Sand.*—The territory covered in this investigation includes several of the most important industrial and silica sand producing regions in the country. Producers of these materials, who are operating under the mineral-aggregates code, express themselves as satisfied with the operation of the code. Business in this industry never reached the low level of other mineral aggregates industries and a pickup which began about a year ago has put operations on a satisfactory level. The hour provisions have resulted in an estimated increase of about 25 per cent. in employment, but the added expense has been compensated for by better and more stable prices. In a few localities low wages had been paid and the removal of this competitive advantage, it is said, has practically eliminated price cutting and unfair competitive practices. Wages in most cases are far above code requirements. The hour restrictions are expected to work little hardship on employees in this industry, as business is not as seasonal as in other mineral aggregates industries.

Plant viewed from quarry, showing truck driveway from quarry to primary crusher building at left. Mohawk River in background.

Plant viewed from highway with screening and storage building at right. Plant office in left foreground also houses truck-scale.

# Crushed-Stone Plant Designed Primarily for Shipping by Motor Trucks

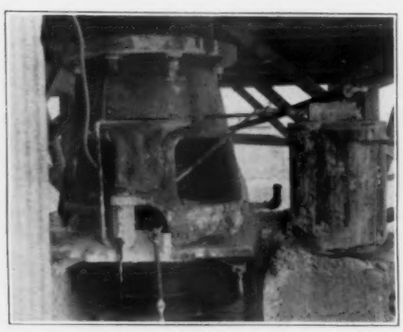
## Coarse Vibrating Screens Have Extra Heavy Wire Cloth at Point of Feed

THE erection of a new crushed-stone plant with a capacity of 125 tons per hr. is not in itself of sufficient importance to the industry in general to arouse more than passing interest. The fact that a plant of this size should deliver entirely by trucks to a comparatively small marketing area, however, is unusual. The plant is that of the Springer Stone Co., Inc., near Pattersonville, N. Y. It went into operation on March 1, 1933, and operated double shifts until closed for the winter.

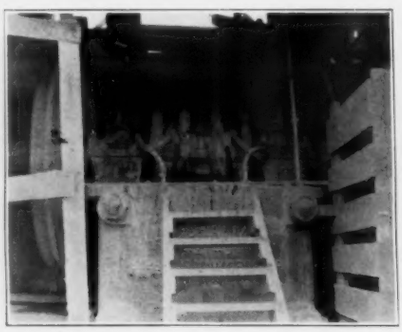
The plant and the office of the company are located on the south bank of Mohawk River, about 12 mi. northwest of Schenectady, N. Y., and 5 mi. southeast of Amsterdam. The plant is of timber construction with concrete foundations and corrugated-metal siding and roofing. It was designed for efficient, low-cost production rather than beauty. While simple in design it has sufficient flexibility to allow the production of practically any combination of material sizes by merely changing screen openings and crusher settings.

The quarry was opened in 1904 to produce riprap for a barge canal but was not used again commercially until taken over by the present owner. The company has 39 acres of stone of unknown depth. The quarry face averages about 60 ft. but this height will be increased to about 100 ft. as the quarry is worked farther back into the hill. The overburden is very light and is removed during dull seasons with the quarry shovel and trucks. The stone is stratified and has a slope of about 14 ft. in 100 ft. back into the hill. It is a very hard limestone which could almost be called a trap rock. Near the surface the stone was badly broken and had many clay seams, but this section has been worked out. This clay was effectively removed by screening.

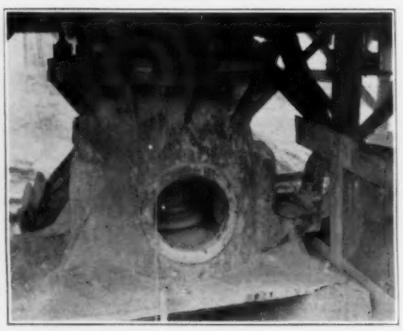
Drilling is done in 20-ft. benches with Ingersoll-



The gearless gyratory reduction crusher with its drive motor visible below.



The 40-in. by 42-in. jaw primary crusher with V-belt drive at right.



The gyratory secondary crusher with its V-belt drive at right.

Rand Jackhamers. The distance between drill holes and from the face varies between 4 and 5 ft. depending on conditions. Hercules 40-per cent. dynamite is now used as 60-per cent. was found to be too fast. It is claimed that about 10 tons of stone is being brought down per lb. of explosive and that each of the air drills is averaging 200 ft. of hole in 8 hr. Detonation is made by electricity with 2 caps to each hole. Very little secondary shooting is necessary.

The stone is loaded by a Byers ¾-cu.yd. gasoline crawler shovel into dump trucks which haul it to the plant. An Erie ¾-cu.yd. crawler steam shovel can also be used for loading when necessary. The company plans to purchase a 2-cu.yd. electric shovel in the near future and will then use the gasoline shovel for stripping. Three trucks are used to haul stone to the primary crusher, which is on a level with the quarry floor and about 125 ft. from the present working face.

The trucks dump the stone directly into the 40-in. by 42-in. Allis-Chalmers primary jaw crusher which reduces it to 5-in. size and under. The crusher discharges on a 30-in. inclined belt-conveyor which is set on 125-ft. centers and feeds the vibrating scalping screen. This is a 4-ft. by 8-ft. double-deck Robins Gyrex unit fitted with 3¼- and 2¼-in. wire cloth on the top and bottom decks, respectively. The material retained on the top deck is chuted to an Allis-Chalmers 5K gyratory crusher, while that retained on the bottom deck goes to a Kennedy-Van Saun No. 25 gearless gyratory crusher.

The material passing the bottom deck of the scalping screen and the products of the two reduction crushers are discharged on a 24-in. inclined belt-conveyor mounted on 125-ft. centers. This feeds a 4-ft. by 8-ft. Robins Gyrex triple-deck vibrating screen having 2½-, 1⅞- and 1-in. openings on its three decks. The oversize from this screen is returned on a 20-in. horizontal belt-conveyor which operates on 100-ft. centers and runs to the Kennedy-Van Saun crusher. If desired, any size or all the sizes, except the throughs (minus 1-in.), from this screen can be returned on the belt to this crusher. Ordinarily, however, the No. 3 stone and dust from this screen are chuted to bins. The stone retained on the bottom deck is chuted to a 3½-ft. by 5-ft. Robins Vibrex single-deck screen having ⅛-in. openings. The dust removed on this screen also goes to storage, while the stone retained on the screen is fed to an 18-in. inclined belt-conveyor placed on 40-ft. centers. This belt feeds a 4-ft. by 8-ft. Robins double-deck screen which has ⅝- and ¼-in. Gyraloy screen cloth on its two decks. All the products of this screen go to storage.

The timber storage-bin has 6 compartments and a total capacity of 1,000 tons. Numbers 3, 4, and 1A, ¾-in., and ½-in., sizes and dust are usually stored. Trucks are loaded through both side- and bottom-discharge gates. A 28-ton Fairbanks truck scale at the plant office is used to weigh the material shipped.

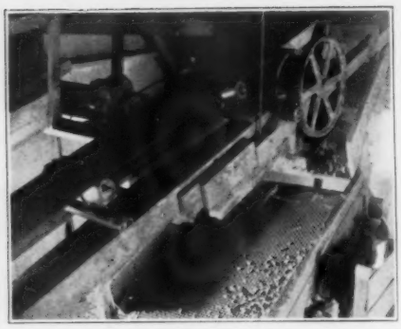
Although all shipments are being made by trucks, a siding to the West Shore Ry. branch of the New York Central, which is just across the highway from the plant, can be put in quickly at any time. The fill for this siding has already been made and has room for 12 cars. The property extends to the river's edge and facilities for water shipment are expected to be installed at a later date.

J. E. Springer, president of the company, made the general design of the plant after an inspection of over forty plants. The detailed plans were made by the Allis-Chalmers Mfg. Co., which supplied two of the crushers. The plant was erected by the company's forces under the supervision of Mr. Springer. A small sawmill on the property was used to cut all the timber needed for the plant.

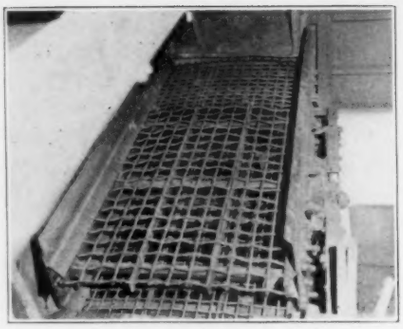
The Robins Conveying Belt Co. supplied the vibrating screens and the belt-conveyor idlers, pulleys and drives. Allis-Chalmers Texrope drives and General Electric motors are used on all the plant equipment. The motor sizes have been standardized as much as possible. The primary crusher and

The ¾-cu.yd. gasoline shovel loading stone in quarry into truck for haulage to plant.

The gasoline-engine-driven stock-pile loader. Note home-made inclosure for driver.



The double-deck fine-sizing screen with feeding belt and chute above.



The triple-deck vibrating screen which is used for coarse sizing.

The single-deck vibrating screen which removes dust from stone.

the Allis-Chalmers secondary crusher are driven by 125- and 40-hp. motors, respectively. The scalping screen and first sizing screen are driven by 7½-hp. motors, the first and second belt-conveyors by 15-hp. motors, the last two screens and the last conveyor by 3-hp. motors, and the conveyor to the reduction crusher by a 5-hp. motor. The Kennedy-Van Saun crusher is driven by a 25-hp. d.-c. motor.

A screen-cloth arrangement which has proved satisfactory in other plants is also in use here. The scalping screen and the first sizing screen have two sections of cloth on their top decks. The first two feet of length on each screen has extra-heavy wire cloth with the same opening as the cloth on the remainder of the screen to take the shock and added wear at the feed end.

Air for drilling in the quarry is supplied by an Ingersoll-Rand stationary air-compressor which is driven by a 75-hp. Westinghouse electric motor. A small Schramm portable compressor is used whenever secondary drilling is being done. Water for the crusher bearings, air-compressor, steam shovel, etc., is obtained from the river a few hundred feet away at the rate of about 20,000 gal. daily by a small Meyer centrifugal pump driven by a 5-hp. motor. Two additional motor trucks are used for stock-piling stone which is later loaded for shipment by a Haiss stock-pile loader.

That the erection of this plant was justified is evident from the fact that it operated at capacity from the first. For four months two 9-hr. shifts were run. When the general N. R. A. code went into effect the employees were put on a schedule of 5 days of 8 hr. each per week. By dividing and staggering the working hours the company was able to get in 6 days of double-shift operation per week.

Mr. Springer, who has had 20 years of experience in the crushed-stone industry, in 1916 founded the Webster & Springer Co., Inc. That company operated a crushed-stone plant at Schenectady, N. Y., which is now run by the Springer Stone Co. Other officers of this company are: Adam F. Schaffer, vice-president; Earl Kellam, treasurer; and M. E. Springer, secretary, who assists his father in the operation of the plant.

## *Lime Public Hearing* (*Continued from page 29*)

produce only about 64 per cent. of the industry's tonnage. Producers of the remaining 36 per cent., Legal Adviser Gallagher pointed out, had no representation at the time the complaint was filed and that, even under the revised Code Authority by laws (which were approved May 20 and allow one additional Code Authority member for every 200,000 tons of production outside the association's membership), non-members producing 36 per cent. of the industry's total tonnage could have only 3 representatives out of a total of 22—the 19 former members and the 3 new ones which would be allowed for the 700,000-odd tons of non-association output. From the questions asked by Mr. Gallagher and Administrator Fogg it was apparent that there was some question in their minds of the adequacy of the plan provided by the new Code Authority by-laws. In an effort to evolve a satisfactory plan the Administrator requested a committee of the Ohio manufacturers to confer with the Code Authority and to report the next day. When that time arrived no decision had been reached and the problem was left with the N.R.A. for solution.

Finally consideration was given to the proposed budget of the Code Authority for the year beginning July 1, 1934. The total estimated cost of $85,000 is equivalent to about 0.7 per cent. of the total sales of the industry in 1933. The budget carries such items as $16,500 for executive salaries, $18,000 for code meetings and industry conference, $6,000 for certified public accountants, $5,000 for special standing committees, and a $6,000 reserve for contingencies. The cost will be levied at the rate of 3.75 c. a ton, which may be increased quarterly if found necessary but not in excess of the $85,000 total.

On being questioned, Paul Hatmaker, statistician of the National Lime Assn., said that the 411 lime plants operated in 1928 produced 4,009,651 tons of lime, valued at $32,166,599. In 1933 the country's 309 plants manufactured 1,972,000 tons worth about $12,046,000. The 175 largest plants produced, he estimated, 1,882,762 tons. All these figures exclude dolomitic lime for refractory purposes.

Speaking for the nine dolomitic-lime manufacturers, S. W. Stauffer said that they would agree to inclusion of their industry as a part of the lime industry and agree to abide by the provisions of its code.

All the questions which were discussed were deferred to the post-hearing conference and with that understanding the hearing was recessed subject to recall by the Administrator.

# Exemption from Code Labor Provisions Asked by Hand-Loading Quarries

## Chairman of Code Authority Opposes Request as Detrimental to Industry

THE application of 25 hand-loading quarry operators for exemption from the labor provisions of the crushed-stone, sand-and-gravel and slag industries code brought high officials of the trade to a public hearing in Washington, May 16, to enter vigorous objection.

While the petitioning operators presented the claim they will be industrially destroyed if not permitted a minimum wage of 25 c. an hour in place of the code requirement of 40 c., the national code authority asked denial of the exemption and predicted collapse of the N. R. A. code if it is permitted. Meanwhile hand operators freely admitted they are ignoring the code requirement as to wages.

Chairman Otho M. Graves of the industry's code authority warned the recovery administration if favorable action results from the request under consideration it will be followed by a flood of new petitions of every description, leading ultimately to the breakdown of the code. His prediction was borne out in part when E. J. Krause, a machine-loading operator at St. Louis, after entering his objection to the exemption, notified Deputy Administrator R. L. Plimpton that he will ask for a similar exception for hand labor in his quarries, covering strippers and others, if the hand loaders are permitted to pay as low as 25 c. an hour.

At the conclusion of an all-day hearing, the administration took the voluminous record for further consideration and is expected to hand down its ruling within one month. Questions asked of witnesses indicated the possibility that N. R. A. may propose a piece-work system for hand operators.

Coupled with the petition for reduced wages was a request that the 40-hr. week be increased to one of 48 hr., but this was not seriously urged.

The following joined in the application for exemption:

Eldred Crushed Stone Co., Eldred, Ill.; Staunton Tie & Lumber Co., Jerseyville, Ill.; C. H. Borlin, Carrollton, Ill.; Charles Hummiston, Jerseyville, Ill.; Winningham Martin Realty Co., Inc., Trenton, Mo.; H. L. Roberts, Route No. 4, Roanoke, Va.; Ellis Sand Co., Star, N. C.; Walter Huysman, Delphos, O.; Independent Quarry Co., St. Louis, Mo.; S. H. Atwood & Son, Liberty, Mo.; J. P. Blair, Griffin, Ind.; The Novaculite Paving Co., Tamms, Ill.; W. C. Heyl, Waterloo, Ill.; Al Stotz, Waterloo, Ill.; Red Bud Quarry Co., Inc., Red Bud, Ill.; Edward Weber, Hecker, Ill.; Wachel and Armstrong Quarry Company, Hecker, Ill.; Otto L. Wolf, Waterloo, Ill.; Joe Schaefer, Waterloo, Ill.; Hellers Bros., Fults, Ill.; C. S. Dashner, Renault, Ill.; Vic Gembert, Red Bud, Ill.; James Nicholson, Prairie Du Rocher, Ill.; Prairie Du Rocher Limestone Co., Prairie Du Rocher, Ill.; New Harmony Gravel Co., New Harmony, Ind.

While the hearing took place specifically for the purpose of hearing the reasons why those petitioning should, or should not, be granted the exemptions, it also was announced that the larger question of whether all similarly situated should be exempted, would be considered on the basis of testimony introduced.

In general terms, the applicants asked the N. R. A. to draw a line between a hand-loading quarry and a machine-loading quarry on this basis: A hand-loading quarry is one in which the stone is blasted from the face, and in which secondary blasting reduces the stone to the size which can be handled by a laborer for loading into trucks, and which serves crushers having openings of small size; a machine-loading quarry is one in which there is no secondary blasting, and in which shovels and the like are used in loading trucks.

It was conceded by the petitioners that the term "hand quarry" it a misnomer since all use some machinery in their production.

Congressman Kent Keller, representing the district in which most of the petitioners' operations are carried on—Region 9 under the code—urged favorable action for the purpose of giving a "square deal" to small enterprise. Otherwise, he predicted, the industry will return to chaotic conditions and national recovery will be defeated in some measure. To force the quarries into machine operation will destroy them, he warned.

The presentation for the Eldred, Heyl and Borlin quarries was made by H. H. Armstrong, owner of the first named of these three. The Heyl quarry receipts for 1932 were $2,873.58, against which were total expenses of $1,876.32, including a labor cost of $1,456.80 on the basis of 20 c. an hour. Net profit for the year was $997.26. If labor had been compensated on the basis of 40 c. an hour, a deficit of $1,916.34 for the year's operations would have resulted, Armstrong pointed out. Quoting figures for 1933, he showed that a profit of $432.48 was made on the basis of 20 c. an hour, but under code wages a loss of $1,608.40 would have been found.

In the Eldred plant, in 1933, crushed stone was produced for an average of $1.724 per cu. yd. and a bid was placed for state highway work at $1.90 per cu. yd. A machine operator took the contract at $1.72 per cu. yd., although his freight to the point of delivery was $1.22 per cu. yd.

The Eldred plant paid average wages of 32 c. an hour in 1930, and made a profit of $6,473.80; 30 c. an hour in 1931, and made a profit of $1,165.69; 25 c. in 1932, and made a profit of $1,651.57; and 20 c. in 1933, and suffered a loss of $189.47. Speaking for this quarry, Armstrong protested the code had been written for the benefit of machine-operated plants and that the business is dominated by

that group. No consideration was given production costs, per ton, in the two types of quarries, he complained.

The Borlin quarry employes have asked that the lower wage be allowed because they realize otherwise they will be without jobs, Armstrong said. This plant is in the same area as the Eldred plant. The Hillview plant of the Eldred company must have the exemption or stop operations at once, he advised.

Armstrong argued that there is a fundamental difference between hand and machine operation involving production, distribution, amount and type of labor. He said this difference was sought to be impressed upon the code committee and later the code authority, but efforts were unavailing. Study by a neutral board, he insisted, would disclose the truth of his statements.

Responding to a question, Armstrong said he is not paying code wages at present but believes machine operators are doing so. As to the need for longer hours, a 48-hr. week, when the business does not now warrant full-time operation, the witness said the expectation of better business in the future prompts the request.

George O. Hoffstatter, operator of Staunton Tie & Lumber Co., appeared for himself and the Hummiston Quarry Co. Production cost in the former plant, when a wage of 20 c. an hour is paid, is $1.806 a ton and sale price $1.90, a profit of $.094 a ton. If a wage of 40 c. an hour was paid, the net loss per ton would be 49 c. Those figures were for 1933.

For 1934, to date, a profit of 18 c. a ton was made, but a 40-c. wage would wipe out all profit and show a loss, he said, due to the higher cost and the fact that prices were dropped recently to meet machine-quarry competition. A laborer loads from three to six tons a day as against a machine-quarry laborer's production of 33½ tons a day, he pointed out. The Hummiston quarry, in 1934 to the present date, paid 25 c. an hour to labor and made a profit of $.056 a ton. On a wage of 40 c. an hour, the loss would be $1.02 a ton.

"If I were a big machine operator I would want a code because there wouldn't be any appreciable labor cost increase, but if I am compelled to pay one-third more, the big producer can dump stone into my area cheaper than I can produce it and I am out of business," Hoffstatter stated.

George H. Becker of Red Bud, Ill., represented the Stotz, Wolf, Red Bud and Weber quarries. For the Stotz plant he itemized expenses running to $38.65 a day, against receipts of $50.00 a day, leaving a profit of $11.35, this being based on 20 c. an hour. At 40 c. an hour, he pointed out, a loss of $.80 a day is assured.

Figures for the Wolf plant show operating costs, for a period of 30 days, of $971.64, with receipts amounting to $1,139.20, a profit of $167.56 remaining. Boosting wages to 40c. an hour would wipe out the profit and leave a loss of $190.88 for each month.

The Red Bud quarry, co-operatively operated, has monthly operating expenses of $666.44 and receipts of $1,462.87. A 40-c. wage minimum would mean a loss of $246.31, with no allowance made for plant depreciation, Becker stated.

Of the 25 petitioners, 16 were not represented at the hearing.

Chairman Graves of the Code Authority verified Armstrong's statement that the argument of difference between the two types of quarries had been called to the Code Authority's attention, but it was rejected, he said, because no basic difference could be found. He gave as an instance a quarry under his own jurisdiction which was shifted from hand-loading to machine, but in which no change in labor costs was found. The objection to such a change is, in large measure, one of convenience, he opined.

Losses in business operations are not peculiar to hand-loading stone quarries, but on the contrary are general throughout the country, and it is not right to ask labor to pay the bill merely because a deposit proves poor or business is small, Graves argued.

"If a quarry can not pay code wages, I say in all seriousness that that quarry shouldn't exist. Labor should not bear the cost of poor judgment in locating a quarry," Chairman Graves declared.

He dismissed the subject of increased hours with the suggestion that if more work is to be done another shift of workers be engaged, thereby aiding the N. R. A. program.

Asserting the petitioners' wages are lower than those paid to Negro labor in the South, he urged that the application be denied, that the code wage of 40 c. an hour be enforced, and that the operators be surcharged for the difference in the amount actually paid and what should have been paid their employees since the code went into operation. Among other reasons for these suggestions, he submitted that there is no difference in the type of hand labor employed in both operations; there is no chance of large operators driving out the smaller, since the latter group can adjust overhead and the former can not; there is no accurate definition of what is a "hand" operator and what is a "machine" operator.

Russell Rarey, president of the National Crushed Stone Assn., although not on the list of witnesses to be heard, was permitted to state the objections of his group to granting the exemption.

Hand-loading continues only so long as it is profitable, the influencing factor in its use being wages, he asserted. He also questioned where a proper line of demarcation can be drawn, beyond which special considerations will not be shown, due to the general use of machinery in quarries which also use hand labor. If there is an advantage between those who load by hand and those who use steam shovels, the advantages seem to lie wholly with the former, in his opinion, due to the fact that they operate in smaller territory and save transportation costs, and have no expensive shovels, the maintenance and capital costs of which continue whether operations go on or not.

W. R. Sanborn, president of the Lehigh Stone Co., and chairman of Region 9, in which 19 of the 25 petitioners operate, said those from his district represent between 3 and 4 per cent. of all operators lo-

(Continued on page 40)

General view of crushed stone plant under construction at site of Norris Dam. Shovel at left opening quarry. Concrete mixing plant is in center background.

# Rapid Progress Being Made on Norris Dam Stone and Concrete Plants

## Temporary Plant Supplying All Material for Preliminary Works

THE crushed-stone and concrete-mixing plant of the Tennessee Valley Authority at Norris Dam, Tenn., is rapidly nearing completion and is expected to be in operation about June 1. It is of modern, fireproof steel and concrete construction and will have a capacity of 300 tons per hr. of aggregates of all sizes. This plant will supply all of the aggregates and mix all of the concrete for the dam, a total of about 800,000 cu.yd. Pouring of concrete is expected to be completed early in 1936.

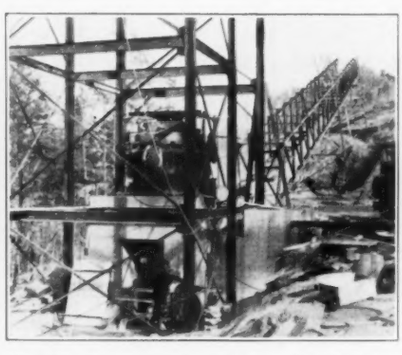
The quarry and plant sites are somewhat unusual, the quarry being on one side of a narrow valley and the main part of the plant on the opposite side. Overburden is being removed by hydraulicking. Loading of rock will be done by 3-cu.yd. Marion and Bucyrus electric shovels and hauling to the Allis-Chalmers 42-in. primary crusher by White and Hug trucks with 12-cu.yd. rear-dump bodies. The crusher is at the edge of the quarry and a belt conveyor spans the valley to the Robins scalping screen and the secondary crusher which is a Symons 5½-ft. short-head cone type.

The aggregate screening and storage plant parallels the valley and consists of a structural steel framework on which are mounted short belt conveyors feeding to the four single-deck vibrating screens. One of these is a Niagara and the other three are Stephens-Adamson sizing screens. The four coarse sizes produced will drop to storage in stockpiles over a conveyor tunnel through which the stone is reclaimed.

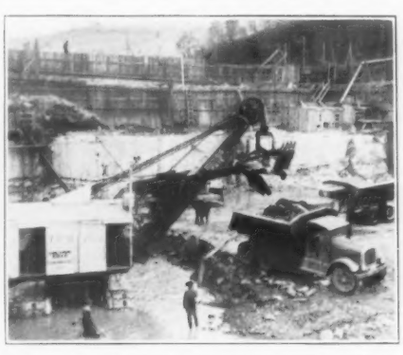
The fine material from these screens will be fed by a series of belt conveyors to a pair of Allis-Chalmers 42 by 48-in. hammer-mills for the production of stone sand. A belt-conveyor will feed a 2-deck vibrating screen of the same make to take out the fine and coarse sands and return the oversize to the hammer-mills. The coarse sand will be conveyed to a belt stacker which discharges to a stockpile over the same tunnel conveyor previously described. The fine sand will go to a Link-Belt wet classifier and to a radial boom belt stacker which also discharges to stock-piles.

The tunnel belt-conveyor reclaims any desired sizes of material from these stock-piles and feeds to a belt-conveyor to the concrete mixing plant. Bins over this plant provide storage for 6 sizes of aggregates and cement. Additional cement storage is provided by a cement silo. Two 6-in. Fuller-Kinyon pumps handle cement to and from storage.

Stripping quarry overburden with hydraulic gun.



The 5½-ft. cone secondary crusher being installed.



Shovel and trucks excavating for dam footings.

The temporary crushing plant which supplied stone for preliminary construction.

Concrete will be mixed by three 3-cu.yd. Smith tilting mixers and side-dump cars will be used to carry the concrete to the 1,900-ft. cableway. This will handle 6-cu.yd. bottom-dump buckets which will place the concrete.

The simple straight-line design of this plant was made possible by the fact that only four sizes of stone will be produced. Sufficient flexibility was retained to provide for variation in the demand for these sizes but provisions for reprocessing of the material were not considered necessary. The demand for aggregate will also be steady so that no excessively large storage capacity is required.

Before this plant was built exhaustive tests of the deposit were made to insure an ample supply of good stone. After test results showed suitable material a small quarry was opened on the large quarry site and a small experimental plant was put into operation early in February, 1934. This plant supplied further material for tests and for the pouring of footings, crusher foundations, conveyor tunnels, etc., for the main plant. Material was also supplied for the concrete counterbalance blocks and thrust anchors for the cableway towers. This plant will be dismantled when the main plant goes into operation.

This plant, because of its temporary nature, is decidedly unpretentious. Drilling is done with Gardner-Denver wagon drills. Stone is loaded by hand to 1¼-cu.yd. skip buckets which are hoisted by a crane on the back of a White truck and carried to the small primary jaw crusher where they are discharged. A bucket elevator discharges the stone to a bin from which a belt conveyor feeds to a shaker screen. The sized stone drops to a storage bin and the oversize to a 2½-ft. Symons cone crusher. A return conveyor feeds the re-crushed stone back to the conveyor feeding the shaker screen. Stone is hauled by truck to the places where it is being used.

## *Hand Loading* (*Continued from page 38*)

cated there and produce a fraction of 1 per cent. of the total output. "Yet," he added, "they can cause endless confusion and strife if allowed this exemption. None of the 400 or 500 producers in Region 9 will be paying code wages in six months if you allow this. It will spread like wildfire!"

Referring to the Eldred plant, he recalled that Mr. Armstrong has been in business 34 years and formerly operated in a perfect deposit, but moved into a place full of deleterious substance. He expressed a conviction that Armstrong could not compete with his present product whether he paid 20 c. or 40c. an hour. Hoffstatter, he said, is inexperienced and a side-line operator who is attempting to turn out 100 per cent. agricultural limestone, something no experienced operator would attempt. No market could absorb it, hence the absence of profits there, Sanborn concluded.

"Heyl is a farmer and like many others he has a sideline—he raises baby chicks. He should move as soon as possible. He went into the wrong place and shouldn't stay there. No one with any quarry experience would," the regional chairman said by way of fixing the difficulty in that quarry.

The Red Bud operation was similarly characterized, and the Wolf quarry expenses were attributed by the witnesses to a recent shifting from one location to another with incidental expense. Stotz he branded as "another quarry operator who made a mistake." His deposit has a floor of clay, saturated with water, he reported. The New Harmony quarry is conducted as a sideline to a business which includes household furniture and a ferryboat, Sanborn said. He summed up the difficulties of the petitioners as being the result of lack of experience.

E. J. Krause of St. Louis, operating with machines, also laid the problem to inexperience and declared against "saving money at the expense of human labor." He stated his plant employs large numbers of hand laborers in stripping and other operations and asserted if this petition is granted he will immediately ask that those workers also be placed on the exempt list.

## Gypsum Output Increases 35 Per Cent in First Quarter of 1934

A decided improvement in the statistical position of the gypsum industry is indicated for the first quarter of 1934 by returns of the quarterly canvass of the industry, by the United States Bureau of Mines, Department of the Interior.

Output of crude gypsum and gypsite rose to 266,761 short tons in the current period, or an increase of 34.9 per cent. over the first quarter of 1933, and represented an advance of 10.6 per cent. over the preceding quarter, thus running strongly counter to the seasonal trend. Sales of uncalcined gypsum and gypsite, while somewhat below sales for the fourth quarter of 1933, were two-fifths greater than for the first quarter of that year. The tonnage of calcined gypsum produced from domestic and imported material also registered substantial gains over the corresponding periods in 1933—206,476 short tons in 1934, against 168,931 tons in the first quarter of 1933, and 182,194 tons in the last quarter.

# MEN OF THE INDUSTRY

ARTHUR S. LANE

ARTHUR S. LANE, treasurer of John S. Lane & Son, Inc., Meriden, Conn., was born Oct. 27, 1864, and after completing his education entered railroad work. In 1891 he resigned his position and joined his father, John S. Lane, in the operation of the present company which the latter had formed the year before. This company was a pioneer in New England highway construction and stone production and is said to have been the first to operate a stone-crushing plant for commercial shipments by railway. Six plants with a total daily capacity of 8,000 tons are operated by the company. Since 1929 Mr. Lane has been regional vice-president of the Eastern District for the National Crushed Stone Assn. and is a crushed-stone member on the Regional Committee for Region 1 in administering the mineral-aggregates code.

# Personal Mention

**Robert J. Potts,** president of the Potts-Moore Gravel Co., Waco, Tex., has been appointed executive-manager of the Seventh Region under the mineral-aggregates code. The regional office is at the same address as the company office, 1411 Amicable Bldg., Waco.

**R. B. Mildon** was recently elected vice-president in charge of marketing, engineering, manufacturing and service for the Westinghouse Electric & Mfg. Co., at its works at South Philadelphia, Pa.

**Ralph P. Brown** has joined the advertising department of the Timken Roller Bearing Co. and the Timken Steel & Tube Co., Canton, O. He was formerly in charge of publicity for the National Lime Assn. and the Brown Instrument Co.

**M. M. Frost,** district manager for the Florida Portland Cement Co. at Jacksonville, Fla., has announced his candidacy for reëlection as state representative from Duval County. Mr. Frost is a past president of the Florida Junior Chamber of Commerce and is actively connected with many other civil and social organizations.

**E. C. Swenson** has replaced **F. B. Harris** as manager of the Swenson Stone Co., Bloomington, Ind. Mr. Harris resigned to go into business independently.

**Leonard Hohlt** has purchased the controlling interest in the Glenns Valley Gravel Co., Indianapolis, Ind., which was organized about a year ago.

**R. H. Baker** has been appointed by the Pennsylvania-Dixie Cement Corp. as sales manager for the Chattanooga district. His assistants are **F. V. Chiquennoi, E. J. Head and H. Magrath.**

**William Soherr** has been made manager of the New England territory for the Patterson Foundry & Machine Co., East Liverpool, O. He will make his headquarters in Boston, Mass.

**Geo. H. Bucher** was recently elected president of the Westinghouse Electric International Co., of which he is also general manager. He will continue to make his headquarters at East Pittsburgh, Pa.

**John F. Joseph,** formerly vice-president and general manager, has been elected president of the Cincinnati Rubber Mfg. Co., Cincinnati, O.

**William S. Faylor** has been promoted to the position of superintendent of the Horseheads, N. Y., aggregates-bituminizing plant of the General Crushed Stone Co. He replaces **A. L. Scott** who has been made superintendent of the company's plant at LeRoy, N. Y. The Horseheads plant resumed operations for the season on May 1.

**W. B. Paynter,** president of the Kentucky-Virginia Stone Co., Inc., Gibson Station, Va., is secretary and treasurer of the newly-formed Cumberland Paving Co., Middlesboro, Ky.

**M. S. Kincaid** has reopened his offices at 343 S. Dearborn St., Chicago, Ill., for Burton Explosives, Inc., and will be in charge of sales for the company in its western division as he has been in the past.

**H. W. Story** was elected vice president and general attorney of the Allis-Chalmers Mfg. Co., Milwaukee, Wis., at a recent meeting of the board of directors. He is also president of the Wauwatosa Stone Co., and Story Bros. Co., crushed stone producers of Milwaukee.

## Obituary

**Henry A. Butler,** 62, director of the Bessemer Limestone & Cement Co., Youngstown, O., died suddenly April 26 after a heart attack while playing golf.

**Frank F. Gallagher,** 49, treasurer and a director of the Goodwin-Gallagher Sand & Gravel Corp., New York, N. Y., died April 6 of injuries sustained in a fall. He was also secretary and director of the Metropolitan Sand Co.

**J. B. Archbold,** 85, president and general manager of the Archbold Sand & Gravel Co., Evansville, Ind., died April 20 in that city. He was also active in the coal business and was regarded as the oldest merchant in Evansville.

**C. M. Walter,** president of the Sprout-Waldron Co., Muncy, Pa., died April 22 after a brief illness.

**Edward Dowd,** 36, superintendent of the McCook, Ill., plant of the Consumers Co., Chicago, Ill., died May 5 as the result of injuries received in an automobile accident near that city. He was also president of the village of McCook in which the plant is located.

**Harry Hartdegan,** 42, yard foreman for the Consumers Co. McCook plant who was in the same accident died May 10 as the result of injuries received. He had also been a trustee of the village of McCook for five years.

**Joseph J. Hock,** 54, president and founder of the Arundel Corp., Baltimore, Md., died May 16 in a hospital in that city, after an operation for a stomach ailment.

## *Coming Events*

**June 25-29, 1934, Atlantic City, N. J.**—Annual meeting of the American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City.

**December 6-7, 1934, Washington, D. C.**—Fourteenth Annual Meeting of the Highway Research Board of the National Research Council, National Research Council Bldg., Washington.

**Charles S. Marshall,** 60, district manager for the Monarch Cement Co., died in Omaha, Nebr., May 5, of a heart attack.

**Marcus E. Calkins,** pioneer salt and cement manufacturer, died May 13 at his home in Ithaca, N. Y. Mr. Calkins at the beginning of the century built the Cayuga Lake Cement Co., of which he was president for 14 years until it was merged with the Pennsylvania-Dixie Cement Corp. He then built the Cayuga Rock Salt Co. plant at Myers, N. Y., and operated this until his retirement in 1920.

## Equipment Corp. Loss in Chicago Fire Only Rumor

The Equipment Corp. of America, Chicago, Ill., announces that reports being circulated that it suffered severe loss in the recent stockyards fire in Chicago are erroneous. The story is said to have been started due to the fact that the company's name was on a large warehouse which burned. The actual fact is that the company moved from this building to its present location about 6 years ago and had no interest in the burned building.

## New Company Formed to Handle Equipment Sales

The Highway Sales Organization, 845 So. Wabash Ave., Chicago, Ill., was recently formed by M. H. Kidder to handle materials and equipment of all kinds for constructing and maintaining roads, streets, bridges, etc. Among the companies represented at present is the Asphalt Equipment Co., Scottdale, Pa. Mr. Kidder announces that he is ready to represent in Illinois companies desiring to reach contractors, city and county officials, aggregate producers, etc. The company is also ready to serve as sales representative for aggregate firms.

## New Corporations

ATLANTA MARBLE & GRANITE CO., Decatur, Ga. Capital $5,000. Incorporators, F. A. Harbin, H. J. Harbin, and Mrs. F. A. Harbin, H. J. Harbing, and Mrs. Louise Harb'n, Fulton County, Ga. To manufacture granite, marble and limestone.

VICTORIA GRAVEL CO., Houston, Tex. Capital $50,000. Incorporators, George R. Brown, Edgar Monteith, A. W. Baring. To deal in sand and gravel.

CRAWFORD BAUXITE CO., Little Rock, Ark. Incorporators, Dr. J. B. Crawford, Glenn Dill and others.

EAST TEXAS LIME CO., Dallas, Tex. Capital stock $4,000. Incorporators, W. E. Butler, Harry Cooper, B. J. Wynne.

DE LANY & DE LANY, INC., Bloomfield, N. J. Capital 500 shares n.p.v. Agent George De Lany. Sand and gravel.

DECORAH CONCRETE PRODUCTS CO., Decorah, Ia. C. B. Taylor, Decorah; John B. O'Rourke, Des Moines; A. R. Goffeen, Decorah.

JOSEPH PESKIN AND JOSEPH FELDMAN, M'chigan City, Ind., 521 Chicago St. To prepare marl clay in a commercial form for market.

GREAT NOTCH GRANULE CO., Newark, N. J. 1,000 shares n.p.v. Agent, Charles H. Hollanbeck. Sand and gravel.

# Aggregates Statistics

To supply the mineral industry promptly with data on crushed and broken stone production during the past year, the following information is furnished by the United States Bureau of Mines.

By J. R. Thoenen
*Bureau of Mines, Department of Commerce*

**Table I.—CRUSHED AND BROKEN STONE SOLD OR USED BY PRODUCERS IN THE UNITED STATES BY PRINCIPAL USES, 1932-33, SHORT TONS**

| | 1932 | 1933[1] | Gain or Loss (*per cent.*) |
|---|---|---|---|
| Concrete and road metal | 48,020,560 | 45,000,000 | − 6 |
| Railway ballast | 3,974,540 | 5,000,000 | + 21 |
| Cement manufacture | 19,400,000 | 15,500,000 | − 20 |
| Lime manufacture | 4,000,000 | 5,000,000 | + 25 |
| Flux stone | 3,991,160 | 8,500,000 | +113 |
| Alkali works | 3,211,770 | 4,200,000 | + 31 |
| Rip rap | 3,462,290 | 4,000,000 | + 16 |
| Agricultural limestone | 910,430 | 1,000,000 | + 10 |
| Refractory stone | 197,430 | 400,000 | +103 |
| Asphalt filler | 177,110 | 120,000 | − 32 |
| Calcium carbide | 188,050 | 120,000 | − 36 |
| Other uses | 4,690,080 | 5,500,000 | + 17 |
| Total | 92,223,420 | 94,340,000 | + 2 |
| Rock asphalt | 314,039 | 277,000 | − 12 |
| Slate granules and flour | 209,750 | 187,000 | − 11 |

[1]Subject to revision.

**Table II.—DIRECT COMPARISON OF IDENTICAL QUARRIES, 1932-33**

| | 529 Quarries, All Classes | | | 119 Commercial Crushed Stone Quarries | | |
|---|---|---|---|---|---|---|
| | 1932 | 1933 | Gain or Loss (*Per cent.*) | 1932 | 1933 | Gain or Loss (*Per cent.*) |
| Tons produced | 44,598,794 | 48,806,289 | + 5.0 | 14,889,888 | 16,528,881 | +11.1 |
| Total man-hours worked | 45,302,377 | 42,612,629 | − 6.0 | 8,089,758 | 7,158,515 | −11.5 |
| Total man-shifts worked | 5,384,822 | 5,669,606 | + 5.3 | 913,252 | 917,617 | + 0.4 |
| Total men employed | 26,592 | 28,977 | + 9.0 | 5,239 | 5,620 | + 7.2 |
| Average days worked | 202 | 196 | − 3.3 | 174 | 163 | − 6.3 |
| Percentage of possible time worked[1] | 67.5 | 65.3 | − 3.3 | 58.0 | 54.4 | − 6.3 |
| Average number of weeks worked[2] | 35.1 | 34.0 | − 3.3 | 30.2 | 28.3 | − 6.3 |
| Average hours worked per man | 1,703 | 1,470 | −13.7 | 1,543 | 1,273 | −17.5 |
| Average hours worked per man per week[2] | 48.5 | 43.2 | −10.9 | 51.1 | 45.0 | −11.9 |
| Average hours worked per shift | 8.4 | 7.5 | −10.9 | 8.9 | 7.8 | −11.9 |
| Average tons per man-shift | 8.28 | 8.26 | − 0.6 | 16.32 | 18.0 | +10.3 |
| Average tons per man-hour | 0.98 | 1.10 | +1.13 | 1.84 | 2.31 | +25.6 |
| Average tons per man-year | 1,677 | 1,615 | − 3.7 | 2,843 | 2,942 | + 3.4 |

[1] Three hundred days assumed possible.
[2] Represents the average number of full weeks worked and hours worked per man per week, assuming continuous operation; all operations, however, were subject to a certain amount of intermittent activity due both to weather conditions and to market factors.

The production of crushed and broken stone for 1932 and the advance figures for 1933, by major uses, are shown in Table I.

Estimates shown for 1933 in Table I are computed from returns from producers for that year received up to May 1, 1934.

Reports from the field indicate that production from temporary and non-commercial plants again increased as did also truck shipment as compared to rail shipment.

The State of Pennsylvania again reported a large production (about 4,000,000 tons) of field stone to be used for road base.

Reports from 529 quarries of all classes representing 48.4 per cent. of the total crushed and broken stone production for 1932 and 51.8 per cent. for 1933 including 119 commercial crushed stone quarries, are presented in Table II.

## Government Boulder Dam Moving Pictures Available

To make available the newly-edited official government progression motion pictures of the Boulder Canyon project to a larger percentage of those requesting dates for exhibition, the Bureau of Reclamation, Department of the Interior, on February 15, 1934, issued a permit for a business enterprise which is known as the Boulder Dam Film Library. Stipulations of the permit require the library to stock sufficient prints of the complete Progression Film in both 16 mm. and 35 mm. to meet the demand. The library, which is located in the Boulder Theater Building, Boulder City, Nev., for a nominal charge forwards the prints to any point in the United States where they are desired for showing.

The edited feature, known as the Boulder Dam Progression Motion Pictures, tells in film the complete story to date of the building of Boulder Dam. The film at present is 4,000 ft. long and is being produced under the direction of the Boulder Dam Film Board, which is comprised of representatives from the Bureau of Reclamation, Six Companies, Inc., and the Babcock & Wilcox Co. It is estimated that the feature will exceed 8,000 ft. in length when work on the project is completed.

## Blasting Cap Accidents to Children in Increase

The Institute of Makers of Explosives, 103 Park Ave., New York, N. Y., calls attention to the fact that the year 1933 showed a slight increase over 1932 in the number of accidents to children from playing with blasting caps. These caps are left lying by careless workmen in and around mines, quarries and contracting operations where they are found by children. Sometimes these caps explode when they are carried in the pocket and bumped, when picked with pins or other sharp instruments, ignited by matches, or in innumerable other ways. These accidents result in blindness, disfiguration, serious injury or death. Intelligent coöperation on the part of producers using caps will do much to stop this rising toll.

## New Nat'l Safety Council Cement Safety Pamphlet

The National Safety Council, Inc., 20 N. Wacker Drive, Chicago, Ill., has published Industrial Safety Series Pamphlet No. Cement 2 entitled *Raw and Finished Cement Mill Grinding.* This pamphlet is one of a series dealing with the decrease or elimination of the hazards encountered in the manufacture of Portland cement. It describes the various operations in a cement plant in which accidents are most common and gives precautions which can be taken to reduce the hazards. This bulletin is profusely illustrated with photographs illustrating the manner in which machinery is made safe for workmen in some plants in the industry.

## New Company Formed to Make Synthetic Stone

The R-H-K Corp. has been formed at Lafayette, Ind., for the manufacture of Rostone, a synthetic stone made of aggregate with shale as a binder. Operations have already been started in the company's new quarters in conjunction with Rostone, Inc., which was formed about a year ago for research purposes. A complete description of this material was published in the May, 1933, issue of PIT AND QUARRY.

# Latest Portland-Cement Statistics

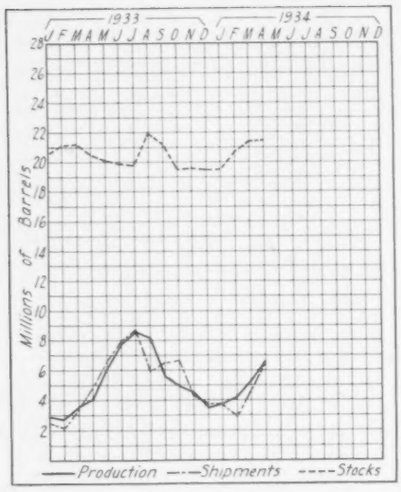



**Chart showing monthly production, shipments and stocks on hand at end of month from January, 1933, to April, 1934.**

The Portland cement industry in April, 1934, produced 6,544,000 barrels, shipped 6,498,000 barrels from the mills, and had in stock at the end of the month 21,468,000 barrels. Production of Portland cement in April, 1934, showed an increase of 56.4 per cent. and shipments an increase of 31.3 per cent. as compared with April, 1933. Portland cement stocks at mills were 4.5 per cent. higher than a year ago.

The statistics here given are compiled from reports for April, received by the Bureau of Mines, from all manufacturing plants except two, for which estimates have been included.

In the following statement of relation of production to capacity the total output of finished cement is compared with the estimated capacity of 163 plants at the close of April, 1934, and of 164 plants at the close of April, 1933.

**RATIO (*per cent.*) OF PRODUCTION TO CAPACITY**

| | April | | March | Feb. | Jan. |
|---|---|---|---|---|---|
| | 1933 | 1934 | 1934 | 1934 | 1933 |
| The month.. | 18.9 | 29.6 | 23.0 | 20.2 | 16.6 |
| The 12 months ended | 26.2 | 25.9 | 25.0 | 24.4 | 23.9 |

**PRODUCTION, SHIPMENTS, AND STOCKS OF FINISHED PORTLAND CEMENT, BY MONTHS, IN 1933 AND 1934** (*In thousands of barrels*)

| Month | Production | | Shipments | | Stocks At End of Month | |
|---|---|---|---|---|---|---|
| | 1933 | 1934 | 1933 | 1934 | 1933 | 1934 |
| January | 2,958 | 3,779 | 2,502 | 3,778 | 20,624 | 19,547 |
| February | 2,777 | 4,168 | 2,278 | 2,952 | 21,125 | 20,762 |
| March | 3,684 | 5,257 | 3,510 | 4,618 | 21,298 | a21,422 |
| April | 4,183 | 6,544 | 4,949 | 6,498 | 20,542 | 21,468 |
| May | 6,262 | ..... | 6,709 | ..... | 20,117 | ..... |
| June | 7,804 | ..... | 7,979 | ..... | 19,936 | ..... |
| July | 8,609 | ..... | 8,697 | ..... | 19,848 | ..... |
| August | 8,223 | ..... | 5,994 | ..... | 22,078 | ..... |
| September | 5,638 | ..... | 6,517 | ..... | 21,216 | ..... |
| October | 5,037 | ..... | 6,750 | ..... | 19,502 | ..... |
| November | 4,672 | ..... | 4,463 | ..... | 19,709 | ..... |
| December | 3,526 | ..... | 3,738 | ..... | a19,541 | ..... |
| Totals | 63,373 | ..... | 64,086 | ..... | ..... | ..... |

*a* Revised.

**DISTRIBUTION OF CEMENT** (*a*)

| Shipped to— | February | | March | |
|---|---|---|---|---|
| | 1933 | 1934 | 1933 | 1934 |
| Alabama | 44,645 | 82,660 | 102,382 | 86,680 |
| Alaska | 0 | 1,002 | 396 | 546 |
| Arizona | 6,404 | 27,405 | 11,215 | 33,348 |
| Arkansas | 20,009 | 35,144 | 40,750 | 41,241 |
| California | 300,772 | 344,447 | 408,287 | 459,765 |
| Colorado | 28,097 | 22,046 | 21,589 | 48,410 |
| Connecticut | 15,195 | 7,991 | 31,371 | 31,248 |
| Delaware | 3,544 | 1,493 | 11,927 | 7,229 |
| Dist. of Col. | 63,020 | 10,794 | 74,034 | 39,711 |
| Florida | 38,447 | 79,619 | 56,114 | 97,036 |
| Georgia | 63,004 | 80,854 | 89,630 | 96,507 |
| Hawaii | 18,175 | 25,359 | 16,515 | 29,052 |
| Idaho | 3,157 | 11,062 | 7,930 | 19,980 |
| Illinois | 115,629 | 99,658 | 125,846 | 183,486 |
| Indiana | 29,925 | 46,468 | 53,239 | 80,074 |
| Iowa | 27,479 | 27,418 | 40,268 | 100,399 |
| Kansas | 50,436 | 82,193 | 90,814 | 142,187 |
| Kentucky | 29,884 | 28,290 | 60,412 | 52,065 |
| Louisiana | 45,045 | 72,742 | 72,703 | 114,612 |
| Maine | 5,164 | 3,535 | 5,992 | 10,609 |
| Maryland | 27,201 | 32,436 | 50,895 | 68,007 |
| Massachusetts | 36,663 | 40,016 | 51,791 | 87,069 |
| Michigan | 28,049 | 85,168 | 58,309 | 129,029 |
| Minnesota | 36,103 | 30,219 | 24,962 | 62,101 |
| Mississippi | 20,639 | 42,702 | 68,898 | 70,322 |
| Missouri | 62,781 | 88,749 | 102,698 | 141,436 |
| Montana | 5,377 | 9,675 | 10,991 | 14,924 |
| Nebraska | 18,787 | 29,470 | 31,797 | 53,206 |
| Nevada | 25,640 | 243,455 | 28,198 | 314,690 |
| New Hampshire | 4,187 | 5,871 | 9,842 | 13,546 |
| New Jersey | 74,419 | 37,489 | 105,287 | 123,965 |
| New Mexico | 10,675 | 18,813 | 32,000 | 27,045 |
| New York | 186,135 | 122,717 | 279,633 | 315,790 |
| North Carolina | 25,735 | 85,435 | 37,203 | 61,595 |
| North Dakota | 3,640 | 5,313 | 3,399 | 9,591 |
| Ohio | 79,452 | 73,047 | 100,985 | 154,827 |
| Oklahoma | 122,392 | 87,120 | 135,761 | 120,961 |
| Oregon | 13,731 | 31,114 | 18,857 | 56,490 |
| Pennsylvania | 148,368 | 88,759 | 196,920 | 212,702 |
| Porto Rico | 3,315 | 27,408 | 1,725 | 12,039 |
| Rhode Island | 4,455 | 4,606 | 10,927 | 12,521 |
| South Carolina | 14,063 | 18,654 | 23,202 | 31,541 |
| South Dakota | 6,580 | 8,830 | 11,375 | 19,890 |
| Tennessee | 34,645 | 74,518 | 112,589 | 89,925 |
| Texas | 202,585 | 265,706 | 365,234 | 329,209 |
| Utah | 2,341 | 10,470 | 10,608 | 18,289 |
| Vermont | 1,439 | 3,201 | 2,111 | 8,356 |
| Virginia | 42,103 | 49,682 | 80,244 | 93,741 |
| Washington | 23,426 | 94,457 | 40,943 | 119,181 |
| West Virginia | 35,426 | 21,323 | 38,733 | 40,493 |
| Wisconsin | 18,124 | 42,398 | 43,856 | 66,387 |
| Wyoming | 6,896 | 4,217 | 4,840 | 7,611 |
| Unspecified | 0 | 0 | 5,514 | 221 |
| | 2,233,403 | 2,873,218 | 3,422,341 | 4,560,885 |
| Foreign countries | 44,597 | 78,782 | 87,659 | 57,115 |
| Total shipped from cement plants | 2,278,000 | 2,952,000 | 3,510,000 | 4,618,000 |

*a* Includes estimated distribution of shipments from 2 mills in February and March, 1934, and from 3 mills in February and March, 1933.

## Cincinnati Rubber Names Several New Distributors

The Cincinnati Rubber Mfg. Co., Cincinnati, O., announces the appointment of two new distributors for its line of mechanical rubber goods. The Buffalo Rubber & Supply, Inc., Buffalo, N. Y., was named distributor for Buffalo and the surrounding territory and the Tennessee Belting Co., Memphis, Tenn., is representative for the region in and around Memphis.

## Western-Austin Mfg. Co. Formed by Consolidation

The Western-Austin Mfg. Co., has been formed by the consolidation of the Western Wheeled Scraper Co., Aurora, Ill., and the Austin Mfg. Co. of Chicago and Harvey, Ill. This consolidation will become effective by July 1 and will eliminate a duplication in service and result in greater economy in manufacture and greater efficiency in distribution and service, according to officials of the company. The general office of the consolidated corporation will be at Aurora, Ill., The Austin-Western Road Machinery Co., Chicago, will continue to handle the sales of the manufacturing company.

## Dorr and Oliver United Dissolve 3-Yr. Affiliation

After affiliating for three years it has been agreed to dissolve the Dorr-Oliver Corp., and that The Dorr Co., Inc., and Oliver United Filters, Inc., thereafter will operate independently of each other. Oliver United will, however, undertake the further adaptation and marketing of the Dorrco filter in the United States and in certain other countries; and Oliver United products, including filters, will be handled in European territories by the foreign representatives of the Dorr Co.

Both Dorr and Oliver United will continue to be represented in South Africa by E. L. Bateman, Pty. Ltd., Johannesburg; in Australia by Crossle & Duff, Pty. Ltd., Melbourne; and in Japan by Andrews & George Co., Inc., Tokyo, acting independently for each company.

## New Representatives of Robins Belt Announced

The Robins Conveying Belt Co., New York, N. Y., announces the opening of two new sales agencies. Fred Bathke, 1957 University Place, St. Paul, Minn., now represents the company in Minnesota, western Wisconsin, and northwestern Michigan, and Raymond Church, Pleasant Ridge Sta., Cincinnati, O., represents it in southwestern Ohio, southeastern Indiana, and western Kentucky.

# Foreign Developments

## Recommends Slag Cement For Road Construction

On the basis of a number of investigations, Dr. Richard Grün came to the conclusion that blast furnace slag can be a useful material for the construction of roads, particularly if instead of mixing the slag with Portland cement as an activator the slag is ground with lime and gypsum to form a slag cement. Slag cements of this sort harden more slowly than blast-furnace cement and consequently are less injured by disturbances during the setting period. — *Der Strassenbau*, 1933, No. 24, and *Tonindustrie-Zeitung*, 58:139, Feb. 5, 1934.

## Oil-fired Rotary Kiln Burns By-Product Lime

Some interesting data on the use of fuel oil as the combustible for burning lime in a rotary kiln have been developed at the plant of the Southend Waterworks, Ltd., in England. The plant is not a commercial lime plant, but calcines the sludge remaining from a system of water purification. About half of the lime produced is used again in the water-treating plant, and the excess is sold for agricultural and construction uses.

The calcium carbonate as it is reclaimed from the basins contains about 85 per cent. of water, but is filtered to about half of that moisture content before it is fed to the rotary kiln. The kiln is a tube of 6-ft. diameter, 85 ft. long (1.8 by 26 meters). During the time the kiln has been used several types of burner arrangements have been tried out before accepting one as satisfactory. The first type tried out developed a spray mechanically (by pressure on the oil), and in developing a proper spray some of the oil was deposited on the lime unburned. The next type had a combination mechanical and compressed-air spray. This burner escaped the objection of the first one, but the oil consumption was excessive, the ratio of fuel to the burned lime being about 85 per cent. The lime produced was of good quality, but the waste gases left the kiln at about 650 deg. C., carrying out a large part of the heat. Also, the output of the kiln was only 5 to 6 tons a day, as against an expected 8.4 tons.

To reduce the heat loss, movable blades were placed in the feed end of the kiln to stir the cold slurry and utilize more of the heat of the gases. This had the effect of reducing the temperature of the gases at the end of the kiln to 450 deg. and the fuel consumption dropped to 35 per cent. Then a ring of refractory bricks was built inside the kiln about midway its length to retain the charge longer in the upper half of the kiln. At the same time the 3-meter flame (originally adopted in correspondence with gas-producer practice) was shortened to 90 centimeters—1 meter. Then it was decided to add 6 meters to the original length of the kiln. These changes together made it possible to make a run of 26 days with an average oil consumption of 32.5 per cent. and an average daily output of 11.33 tons of lime. The burner finally adopted was a Laidlaw-Drew with compressed-air spray.

By lining the first 21 ft. of the kiln (at the firing end) with high-refractory bricks and forcing the feed the results were again bettered. In a period of 31 days the average daily output was 16.3 tons, the fuel ratio 261 per cent., and the average percentage of unburned lime 1.5 per cent. On one day the production touched 23.3 metric tons with an oil consumption of 200 kg. per ton, and the percentage of unburned was only 1.9 per cent.—Adrien Leduc in *Revue des Materiaux de Construction* No. 294:65-69, March, 1934.

## "Pure Cement" Order In New Italian Standards

The sale of cement containing a greater or smaller amount of inert materials admixed at the factory—usually some of the volcanic materials so abundant in Italy—has for some time been a practice giving rise to a good bit of trouble in the Italian cement industry. The inert admixture was usually designated as a "corrective," but in some cases a cement was put on the market containing as high as 60 per cent. corrective and only 40 per cent. clinker.

This condition is considerably alleviated by new Italian standards of July 29, 1933. Although the advocates of Portland are still not satisfied with the Italian definitions and standards, at least a cement can no longer be called Portland if it contains inert admixture. Cement containing inert admixtures, or which fails to develop compressive strength of 350 kg./sq.cm. at 7 days and 450 at 28 days in standard 1:3 mortar must be designated "cement binders" *(agglomérants ciments)*. Cements of any type (Portland, blast furnace or pozzuolan) which develop 600 kg./sq.cm. strength at 28 days are entitled to be called "high strength" cements.—Marc Elber in *Revue des Materiaux de Construction* No. 294:88-89, March, 1934.

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## German Device Samples Gases from Shaft Kiln

One of the big advantages of the rotary kiln is the ability of the kiln attendant to observe the burning process and to regulate the operation of the kiln according to conditions which he can detect by simply looking into the kiln. The closest equivalent to this simple control in the case of the shaft kiln is a frequent analysis of the gases issuing from the kiln, as the gases change rapidly with changed conditions in the burning process. As gases from the stack have certain drawbacks, a German inventor has devised an apparatus for taking samples from the part of the kiln which he found, by test, to give the most representative indication of conditions in the kiln—immediately below the revolving feeder. The device, illustrated and described by H. Richarz in *Zement* 23:144-145 (March 15, 1934), consists essentially of a system of tubes drawing gas samples from different parts of the kiln cross-section between the feeder table and the charge.

## Germany Limits Output And Fixes Cement Price

Cartels and unions for the maintenance of prices and the limitation and prorating of cement production quotas have been in existence in Germany for several years, but prior to the strict orders and enforcement of the present regime the market was still upset by the underbidding of a few "outsiders" who cut heavily into the possible sales of the plants in the unions.

Under orders of the Hitler government the cement industry in Germany seems now to be in a position where sales depend wholly on the excellence of the product and the efficiency of the sales organization; price inducements are out. During the life of the present order continuing the existence of the unions (expiring at the end of the current year) the expansion of production facilities through new plant construction is forbidden. Sales at present are on the upturn, and it is predicted that increased volume will soon make possible a voluntary reduction in the price scale.—*Tonindustrie-Zeitung* 58:217 219, March 1, 1934.

# New Machinery and Supplies

## Greater Road Contact Area One of Features of New Tire

The Goodyear Tire & Rubber Co., Inc., Akron, O., announces a new automobile tire known as the "G-3", for which an increase of 43 per cent. in non-skid mileage is claimed. This tire is named after the symbol used to identify it in the laboratory while it was undergoing tests. According

Goodyear "G-3" tire with wider and flatter tread.

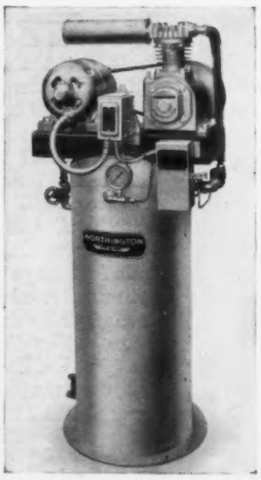
to the company the difference between the G-3 All-Weather tire and any previous tire is readily apparent to the eye and consists essentially of a wider and flatter tread which has a greater area of contact with the road. As a result the load and wear is distributed over a greater surface of the tire and the traction efficiency factor is increased. Other features are more non-skid blocks in the center of the tread, wider riding ribs, narrower grooves, and an average of two pounds more rubber in the tread of each tire.

It is stated that this tire is being placed on the market as the result of the tread wear problem created by present day automobiles with their smaller wheel diameters, higher speed, faster getaway and more powerful brakes. The wider use of anti-friction surfaces on new highways is also said to have been responsible for a faster tread wear on all tires during recent years. Before being put on the market it is said that this tire was put through the most severe tests ever undergone by any tire.

## Air Compressor Is Mounted on Tank as Complete Unit

The Worthington Pump & Machinery Corp., Harrison, N. J., announces the Type VS air compressor which is mounted on a tank as a complete unit and is an improvement on the company's line of single vertical units. This compressor is made in seven sizes with displacements of from 1.5 to 10.7 cu. ft. per minute and with integral electric motors of from ¼ to 2 hp. All sizes of this unit have a maximum pressure of 150 lb. per sq. in. The tanks supplied with these units range in capacity from 20 to 65 gals.

All of these units and motors are mounted on their air tanks. The smaller units have the tanks set vertically for minimum floor space. The two larger units have their tanks set horizontally. The electric motor drives the compressor through a Worthington Multi-V drive arranged so that the belt tension can be quickly adjusted. Operation is automatically controlled by an



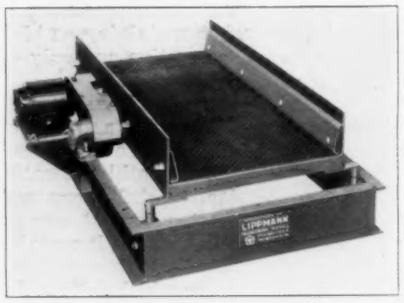

The Worthington VS tank-mounted compressor.

electric pressure switch and a magnetic unloader independently unloads the compressor during starting and stopping periods and in the event of power interruptions.

Features of the compressor are: Totally-enclosed crankcase, vertical combination oil gauge and filling cap, air finned cooling of cylinder and head, copper aftercooler, replaceable cylinders, flanged suction and discharge openings, and silent suction muffler and cleaner.

## Positive Eccentric Vibrating Screen Requires No Springs

The Lippman Engineering Works, Milwaukee, Wis., announces a positive eccentric type vibrating screen which is built in all sizes from 2-ft. by 3-ft. to 6-ft. by 12-ft. with single, double or triple decks. It is claimed for this screen that its uniform throw assures the same amount of action when loaded as when idling, that its perfect counterbalance eliminates all rebounding jars and renders full benefit of the momentum of the balance wheels, and that




An eccentric-type vibrating screen which can be used at a very flat angle.

its smooth action transmits almost no vibration to its supporting frame.

This screen has an extra-large shaft of nickel-chromium heat-treated steel, all bearings are anti-friction, self-aligning and protected against dust, grit and water. No springs are used and the screen inclination can be changed from 5 deg. to 10 deg. without changing the slope of the frame. The balance wheels have hollow compartments filled with lead shot which can be accurately proportioned for perfect balance. Screen decks can be changed by loosening a few bolts and the decks can be either crowned or flat. Dust-proof enclosures can be provided where needed.

## Improved Hydrotator Unit in Use as Portable Demonstrator

The Hydrotator Co., Cleveland, O., announces a new and improved Hydrotator hydraulic classifier for the classification and washing of sand, gravel and similar materials. A full-sized classifier was recently hauled on a trailer from Hazelton, Pa., to Lakeland, Fla., a distance of 1,200 mi. in 3 days to demonstrate its mobility.

A test Hydrotator classifier mounted at plant.

The classifier and trailer weighed about 3,200 lb. This classifier was six feet in diameter but the company states that single units may be built to handle any tonnage.

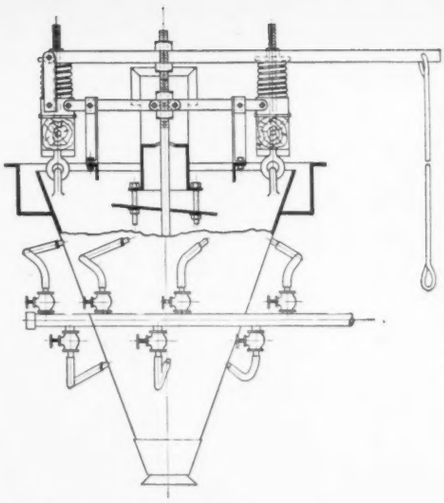
This classifier is now being tried out by various phosphate companies in Florida for the classification of fine phosphate rock. It takes the washer water and fine solids, overflows the water, clay and fine solids through 60, 100, or 150 mesh as desired, and underflows a clean, deslimed sand product, ready for flotation treatment. The company plans to demonstrate this classifier in other territories and industries where classification is practical. The demonstration unit is equipped with a Lincoln electric motor and controls and a Reeves variable-speed drive.

## Sand Classifier Designed for Use Singly or in Combination

The Kennedy Van Saun Mfg. & Eng. Corp., New York, N. Y., has developed a complete new line of washing classifiers and dewaterers which is said to eliminate the shortcomings of the old-type cone entirely. This unit may be used as a single unit, or in battery, or in series to obtain washed and dewatered products of various finenesses. This machine is said to be especially suited to the washing of gravel, concrete, sand, and masonry sand.

This unit consists of a cone with an arrangement of whirling nozzles placed tangentially around the circumference at definitely determined points. These nozzles add fresh high-pressure water to the interior of the cone, violently rotating the material to be washed. The incoming material is fed into the whirling washing zone of the cone by sending it over a spreader plate, uniformly distributing it around the outside of the cone, and preventing the formation of a vortex in the center of the cone. Dirty water with the dissolved slime and loam is discharged over the whole circumference of the cone edge into a circular launder.

A positive and quick-acting control was built into the machine in order to control classification of the material. The ma-



Cone-type washing classifier and dewaterer.

chine is suspended on four springs which continuously weigh the contents of the cone. The movement of the scale beams operated by the spring movement is used as a control medium for opening and closing the discharge gate of the cone. The simple lever mechanism used for this purpose is adjustable so that the material level in the cone can be raised and lowered to suit operating conditions. The adjustability of the material level and of the water velocity spilling over the edge of the cone are said to definitely control the fineness of the product.

This cone is also said to dewater the material sufficiently for belt conveyor transportation. The spring weighing mechanism, actuated by the weight of the charge, is said to close the discharge gate immediately when the feed stops, preventing an outrush of improperly cleaned material or a leakage of water.

## Pneumatic Replacements for Crawler Tracks Announced

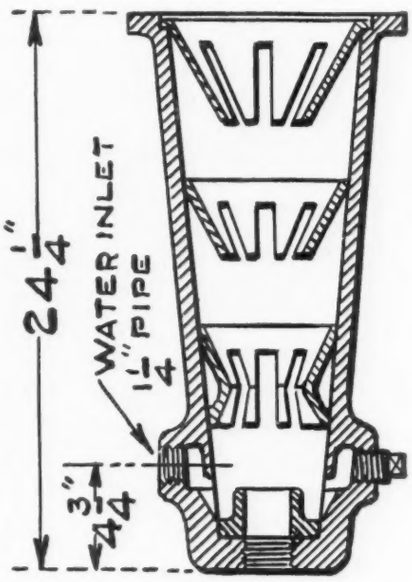
The LaPlant-Choate Mfg. Co., Inc., Cedar Rapids, Ia., announce that they have taken over the manufacture and sale of rubber-tire replacement assemblies formerly designed and sold by the E. H. Anderson Co., Chicago, Ill. These units, known as "Air-Lode-Carriers", can be used to replace tracks on any and all makes of wagons and, because of their easier rolling resistance, are said to afford fuel savings as high as 35 per cent. for the tractors hauling them. It is also claimed that under almost all conditions the same power unit can haul a bigger load or the same load can be hauled with a smaller power unit.

It is said that with the low-pressure tires and the oscillating feature provided in the design the load can be carried over very soft soils with about the same bearing surface on the ground as has been provided with wagon tracks. The rear wheel of the "Air-Lode-Carrier" is arranged as a caster which enables the unit to turn very short. A special locking arrangement permits the caster-wheel to be locked for backing up if desired. The rubber replacements weigh about 3,000 lb. less than the tracks on standard 8-cu. yd. wagons, it is claimed.

Dump wagon mounted on pneumatic tires with rear wheels on casters.

## Develop Hindered-Settling Type of Funnel Classifier

The Deister Machine Co., Fort Wayne, Ind., has developed a compound funnel classifier of the hydraulic hindered-settling type which is said to be particularly adapted to use in sand-and-gravel or other plants for the sizing of fine materials from $^5/_{16}$-in. down and also for the cleaning of




Compound funnel classifier with slotted funnels.

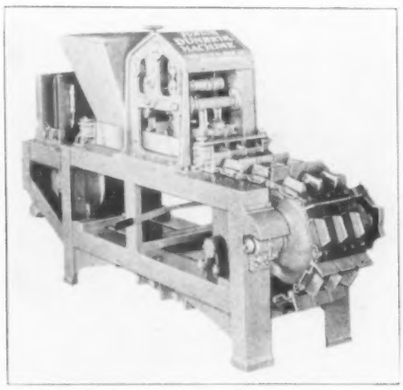
sand by the elimination of silt, slime, vegetable matter and other similar light impurities.

The classifier consists of a conical, open-top barrel in which is placed a combination of three slotted funnels which are held in position by two metal straps and can be inserted in the barrel as a unit. The lowermost funnel is of the compound type, that is, its wall inclines inwardly in its upper portion and flares outwardly in its lower portion similar to a venturi tube. In the lower part of the barrel, immediately above the spigot outlet, is a removable flanged casting which has a central opening registering with the opening in the bottom of the barrel. This casting serves as a pressure-water distributor and is also said to prevent the water and sand from cutting out the bottom of the barrel. In the wall of the barrel is an annular hydraulic pressure chamber connecting with the water-inlet pipe and provided with downward sloping ports which direct the pressure water toward the distributor.

There are a number of ways in which this classifier can be applied for particular uses but the most common is to bolt it to a settling chamber built in, or attached to, a launder or flume. If more than one classifier is used settling chambers of various depths are required. Each classifier has a capacity of from 2½ to 5 tons per hr. and requires from 30 to 50 gal. of hydraulic water per min. For best results a fairly constant water pressure is necessary, a minimum head of 40 ft. being adequate in most cases.

## Automatic Brick Machine Is Continuous Production Type

The W. E. Dunn Mfg. Co., Holland, Mich., has developed a new automatic, straight-line, continuous-production type

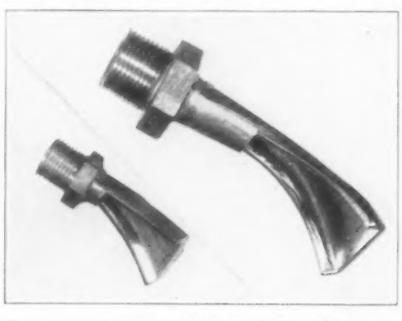


Automatic machine which makes bricks with voids in under mortar bed.

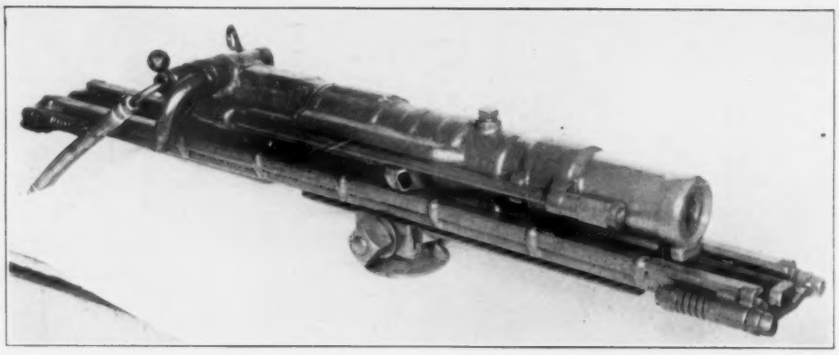
of brick machine in which the pallet boxes pass under an open-bottom hopper where the material is measured and then passed under a graduated packer-head from where the finished bricks are delivered by an endless carrier to an off-bearer. The machine has a capacity of 25 U. S. standard bricks per min. and can be readily converted to make either double or triple brick as well. A void in the under mortar bed reduces the weight about a pound below that of ordinary bricks and is said to require 20 per cent. less material. The "Dunbrik" machine is also made in larger sizes with capacities up to 24,000 units per day. In addition to the standard brick units the machine can be furnished to make building tile in sizes ranging from 5 in. by 4 in. by 8 in. to 5 in. by 8 in. by 12 in.

## New Rex Spray Nozzle Said To Give Flat, Dustless Spray

The Chain Belt Co., Milwaukee, Wis., during the past year designed a new Rex spray nozzle which is said to be ideally suited to the needs of plants requiring efficient washing and scrubbing action. The design of this nozzle is said also to result in a low water consumption. A round water spray hits a curved deflector plate, resulting in a flat spray, free from dust, directed at the material to be cleaned. It is said that any desired washing or scrubbing action can be obtained by proper spacing of the nozzle on the supply pipe, by correcting distances for material to be washed, and by the use of proper water pressure. Rex spray nozzles are made in two sizes, the larger having a throat $^{11}/_{32}$-in. in diameter and the smaller a $^1/_8$-in. diameter throat.



Two sizes of nozzles which result in a flat spray.



Automatic-feed, self-rotating drifter drill which has synchronized action.

## Automatic-Feed Drifter Has Controlled Positive Action

The Gardner-Denver Co., Quincy, Ill., announces a new automatic-feed self-rotating drill known as the D-89 Selfeed Drifter. These drills are said to embody a self-feeding principle never before available in rock drills and to be vibrationless with self-controlled positive action. The synchronized action keeps the machine feeding at the proper rate of speed and the drill is held constantly in the proper striking position. One of the outstanding advantages claimed is that this drill enables an inexperienced man to drill as fast as an experienced one.

## Rubber-Tired Trailer to Haul Boulder Dam Pipe

An unusual type of trailer, designed for the handling of steel pipe in connection with the building of Boulder Dam, is being used by Six Companies, Inc. The steel pipe is to serve as a liner for the penstock main headers and its branches. The larger sections of pipe are made from six steel plates so heavy that only three of them can be shipped from the steel plant to Boulder City on one flat car. The impossibility of shipping pipe of such sizes by railway made it necessary for Babcock & Wilcox of Barberton, O., to set up a fabricating plant about 1½ mi. from the dam on the railroad and highway to Boulder City.

The maximum load is approximately 185 tons. The length of the longest pipe is 24 ft., and as the center of gravity is rather high it was imperative that the bearing points of the trailer be as wide as possible. In view of the great width thus required, it was obvious that ordinary steering methods were out of the question, as in turning a curve of 100-ft. radius the wheels making the outer arc of the curve were sure to be dragged over the pavement to some extent in keeping up with the wheels on the inner or short side of the curve.

The trailer was furnished by the C. R. Jahn Co., designed and built in the shops of the La Crosse Boiler Co., in collaboration with the Bendix-Westinghouse Automotive Air Brake Co., Ingersoll-Rand, Northern Pump Co., and the Goodyear Tire & Rubber Co. This machine is built of a fabricated-steel frame, is equipped with air brakes, has hydraulic steering, and meets the condition of traveling the narrow road and sharp curves by separate control of the wheels on either side of the trailer. The basic structure consists of a frame built up on two 33-in. beams on which are mounted axles and wheels, oil pump, steering mechanism, and air-compressor. The overall length is 37 ft. 8 in., the overall width, 22 ft. The axles are spaced 14 ft. 9 in. center to center. The frame is supported by 16 wheels mounted on eight axles, two on each side at each end. Thus there are four wheels on each side at each end, carrying eight 28-in. by 14-in. Goodyear tires, making a total of 32 tires on the trailer. This provides 448 in. of tire width distributed over the 16 wheels, providing 28 in. of tire width per wheel. This is necessary, as with a possible maximum load of 185 tons each tire may at times be called upon to carry 14,000 lb. or more. The capacity of each tire is 10,200 lb. which, with an overload allowance of 25 per cent. because of the slow speed at which the trailer will travel, assures a maximum total tire capacity of 407,-725 lbs.

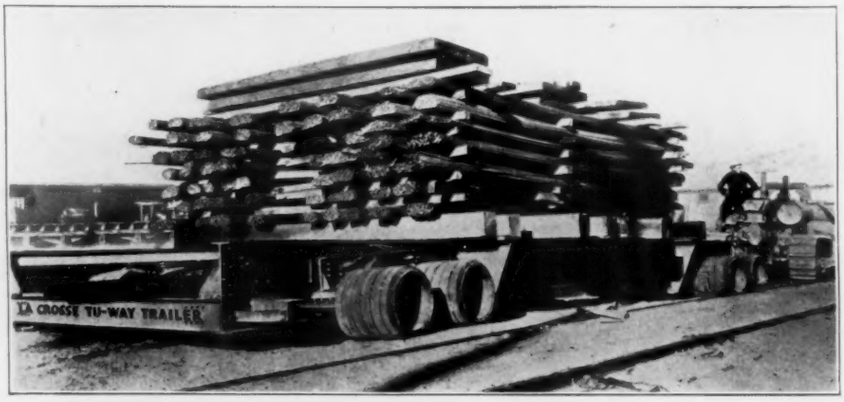
The wheels are mounted on oversized Timken bearings, two to each wheel, lubricated by a high-pressure grease system. Dual axles placed in tandem are mounted on turntables on the main beams. These axles are of the tilting, oscillating type. This provides for a balanced load and will care for any normal obstruction to be encountered on the average road without materially disturbing the platform level, which is essential with a load of this kind having a high center of gravity.

In order to make power available for instant use when the position of the wheels changes to meet road conditions, it was essential that constant equalized pressure be maintained on the hydraulic cylinders. The perfected plan utilizes a 15-hp. gasoline engine driving an oil pump which supplies a constant equalized pressure to the hydraulic cylinders, by which there is one for each set of four wheels. The steering action is controlled by a steering wheel which actuates a control valve. This wheel is mounted on a platform at one end of the trailer.

Brakes are of the internal expanding type with Bendix-Westinghouse air-brake chambers mounted on a special bracket at each of the 16 wheels. Four air-storage tanks are mounted, one in each of the four corners of the trailer frame, with one main storage tank mounted close to the compressor. The total brake surface is 3,166 sq. in. The necessary emergency features are included, and should anything happen to disconnect the hauling unit or the air lines to the wheels, the brakes would automatically apply and the trailer would stop instantly. The air-compressor is an Ingersoll-Rand type 30 and is mounted on the right-hand side of the trailer. It is driven by a V-belt from a 5-hp. gasoline engine which operates it at a speed of 600 r.p.m. The compressor maintains a pressure on the tanks of from 90 to 100 lb.

Cradles covered with rubber blocks 18-in. by 36-in. are provided for the pipe. Different size cradles are provided for the different sizes of pipe. It is contemplated that the trailer will be hauled by tractors or trucks.

The test of this huge hauling unit was but recently completed. It consisted of loading the trailer with bundles of reënforcing rods averaging 200 ⅝-in. rods to the bundle. The net load was 194 tons, not including the weight of the timbers used in supporting this. The trailer itself weighs approximately 41 tons, making a gross road load of over 235 tons. The trailer and its load was pulled over railroad crossings and other obstacles by two large tractors, and the successful operation under this severe test proved its great strength and flexibility.




Trailer made to haul heavy pipe for Boulder Dam shown during tests. The trailer is mounted on sixteen wheels with two tires each.

# Traction

Good TRACTION—on city pavements—on country roads—often where there are no roads at all—it's of vital importance for trucks that haul cement, crushed stone, gypsum, sand and gravel.

Good TRACTION means ECONOMY. It means more POWER for the heavy hauls. It means sure stops, faster starts, greater safety, more efficient hauling—*lower cost* per ton mile.

Goodyear Truck Tires give you better traction because of that tough ground-gripping All-Weather tread that bites down and holds fast on any road. They give you *"center" traction,* where it is needed most.

—And under the tread—patented pre-shrunk Supertwist Cord construction for ENDURANCE, LONG LIFE. Supertwist has life and elasticity long after other cords sag and fail.

*It's no wonder that more tons are hauled on Goodyear Truck Tires than on any other kind.*

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## sure-footed

– bites down
– holds fast

NRA

GOODYEAR

TRUCK TIRES — *Money savers*

# Classified Buyers' Guide

## A Directory of PIT AND QUARRY Advertisers Arranged According to Product

*Although every effort is made to insure accuracy and completeness in these listings, the publisher cannot accept responsibility for errors or omissions. Any mistakes discovered will gladly be rectified, if brought to the attention of the Advertisers' Service Department.*

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**Agitating Ladders (Dredge)**
*Eagle Iron Works
Pettibone Mulliken Co.

**Air Separators**
Raymond Bros. Impact Pulv. Co.

**Arresters (Lightning)**
*General Electric Co.

**Ash and Refuse-Handling Equipment**
Allen-Sherman-Hoff Co.
*Bartlett & Snow Co., C. O.
Haiss Mfg. Co., Geo.
Hetherington & Berner, Inc.
*Link-Belt Co.
*Robins Conveying Belt Co.

**Automatic Feeders**
*Bartlett & Snow Co., C. O.
*Link-Belt Co.

**Automatic Weighers**
*Bartlett & Snow Co., C. O.

**Balls (Grinding)**
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.

**Balls (Tube-Mill, etc.)**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.

**Baskets (Dipping)**
Buffalo Wire Works Co.

**Bearings (Anti-Friction)**
*Bartlett & Snow Co., C. O.
Hetherington & Berner, Inc.
*Link-Belt Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

**Bearings (Oil-Less)**
Chrysler Corp.; Amplex Division

**Belting**
Goodyear Tire & Rubber Co.
Haiss Mfg. Co., Geo.
*Link-Belt Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.
Thermoid Rubber Co.

**Belting (Multiple V)**
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Thermoid Rubber Co.

**Bin Gates**
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*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
*Hendrick Mfg. Co.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
*Link-Belt Co.
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Morrow Mfg. Co.
*Robins Conveying Belt Co.
Smith Engr. Works
Sprout, Waldron & Co.

**Bins (Cast Iron)**
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**Bins (Steel)**
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*Hendrick Mfg. Co.
Hetherington & Berner, Inc.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
McLanahan and Stone Corp.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

**Blast-Hole Drills** (See Drills—Blast-Hole)

**Blasting Machines**
Atlas Powder Co.
*Hercules Powder Co.

**Blasting Supplies**
Atlas Powder Co.
*Ensign-Bickford Co.
*Hercules Powder Co.

**Blocks (Sheave)**
*Sauerman Bros., Inc.
Sprout, Waldron & Co.

**Bodies (Motor Truck, Concrete Mixing)**
*Bartlett & Snow Co., C. O.

**Borings, Core**
Mott Core Drilling Co.
Pennsylvania Drilling Co.

**Brake Linings**
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**Breakers (Circuit)**
*General Electric Co.

**Bronze Work (Ornamental)**
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National Wire Cloth Co.

**Bucket Elevators** (See Conveyors and Elevators)

**Buckets (Clamshell, Orange-Peel, Etc.)**
*Bartlett & Snow Co., C. O.
Haiss Mfg. Co., Geo.
*Link-Belt Co.
Pettibone Mulliken Co.
Wellman Engr. Co.

**Buckets (Dragline—Cableway)**
*Bartlett & Snow Co., C. O.
*Link-Belt Co.
*Sauerman Bros., Inc.
Wellman Engr. Co.

**Buckets (Elevator and Conveyor)**
*Bartlett & Snow Co., C. O.
Haiss Mfg. Co., Geo.
*Hendrick Mfg. Co.
Iowa Mfg. Co.
*Link-Belt Co.
McLanahan and Stone Corp.
Pettibone Mulliken Co.
*Robins Conveying Belt Co.
Smith Engr. Works
Sprout, Waldron & Co.

**Bulk-Cement Storage Plants**
Sprout, Waldron & Co.

**Burial Vault Forms**
Automatic Sealing Vault Co.

**Cableways**
*American Steel & Wire Co.
*Link-Belt Co.
*Sauerman Bros., Inc.

**Caps (Blasting)**
Atlas Powder Co.
*Hercules Powder Co.

**Capstans** (See Winches and Capstans)

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*Link-Belt Co.
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**Car Pullers**
*Bartlett & Snow Co., C. O.
*Link-Belt Co.

**Carriers**
*Bartlett & Snow Co., C. O.
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*Robins Conveying Belt Co.
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Sprout, Waldron & Co.

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**Castings**
*Bartlett & Snow Co., C. O.
*Eagle Iron Works
Hetherington & Berner, Inc.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
*Link-Belt Co.
McLanahan and Stone Corp.
Pettibone Mulliken Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

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**Central Concrete-Mixing Plants (Complete)**
*Bartlett & Snow Co., C. O.
Sprout, Waldron & Co.

**Chain Drives**
*Link-Belt Co.

**Chain (Elevating and Conveying)**
*Bartlett & Snow Co., C. O.
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*Link-Belt Co.
Sprout, Waldron & Co.

**Chutes and Chute Liners**
*Bartlett & Snow Co., C. O.
Goodyear Tire & Rubber Co.
Haiss Mfg. Co., Geo.
*Hendrick Mfg. Co.
Iowa Mfg. Co.
McLanahan and Stone Corp.
Morrow Mfg. Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

**Classifiers**
Deister Machine Co.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Foundry & Machine Co.
*Link-Belt Co.

**Clips (Wire Rope)**
*American Steel & Wire Co.

**Clutches**
*Link-Belt Co.
Sprout, Waldron & Co.

**Coal-Pulverizing Equipment**
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*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Raymond Bros. Impact Pulv. Co.

**Compressors** (See Air Compressors)

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*Link-Belt Co.
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**Converters (Electric)**
*General Electric Co.

**Conveyor Belting** (See Belting)

**Conveyors Idlers and Rolls**
Barber-Greene Co.
*Bartlett & Snow Co., C. O.
Iowa Mfg. Co.
*Link-Belt Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

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Allen-Sherman-Hoff Co.
*Allis-Chalmers Mfg. Co.
Barber-Greene Co.
*Bartlett & Snow Co., C. O.
Haiss Mfg. Co., Geo.
*Hendrick Mfg. Co.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Foundry & Machinery Co.
*Link-Belt Co.
McLanahan and Stone Corp.
Morrow Mfg. Co.
*Robins Conveying Belt Co.
Smith Engr. Works
Sprout, Waldron & Co.
*Universal Crusher Co.

**Conveyors (Ready-Mixed Concrete)**
*Bartlett & Snow. Co., C. O.
*Robins Conveying Belt Co.

**Coolers** (See Kilns and Coolers —Rotary)

**Couplings (Flexible and Shaft)**
*Link-Belt Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

**Couplings (Hose, Pipe, etc.)**
Thermoid Rubber Co.

**Cranes (Crawler and Locomotive)**
*Link-Belt Co.
*Michigan Power Shovel Co.
Ohio Power Shovel Co.

**Crusher Parts**
*American Pulverizer Co.
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.
McLanahan and Stone Corp.
Pettibone Mulliken Co.

**Crushers (Hammer)**
*Allis-Chalmers Mfg. Co.
*American Pulverizer Co.
*Bartlett & Snow Co., C. O.
*Dixie Machy. Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
*Universal Crusher Co.

**Crushers (Jaw and Gyratory)**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
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*Universal Crusher Co.

**Crushers (Ring)**
*American Pulverizer Co.
*Bartlett & Snow Co., C. O.

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*Allis-Chalmers Mfg. Co.
*American Pulverizer Co.
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.
*Link-Belt Co.
McLanahan and Stone Corp.
*Robins Conveying Belt Co.

**Crushers (Rotary)**
*Allis-Chalmers Mfg. Co.
*American Pulverizer Co.
*Bartlett & Snow Co., C. O.

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McLanahan and Stone Corp.

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*Hercules Powder Co.

**Diesel Engines** (See Engines—Diesel)

**Dipper Teeth**
Pettibone Mulliken Co.

**Dragline Cableway Excavators**
*Link-Belt Co.
*Sauerman Bros., Inc.

**Dragline Excavators**
*Link-Belt Co.
*Michigan Power Shovel Co.
Ohio Power Shovel Co.
*Sauerman Bros., Inc.

**Dredges**
Hetherington & Berner, Inc.
*Morris Machine Works

**Drilling Contractors**
Mott Core Drilling Co.
Pennsylvania Drilling Co.

**Drills, Diamond**
Mott Core Drilling Co.
Pennsylvania Drilling Co.

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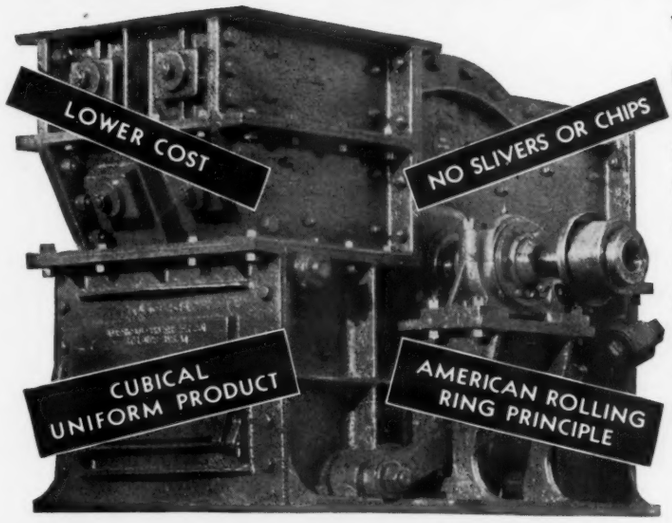


Performance is the basis on which to judge the superiority of the American Rolling Ring Crusher.

It makes good on the job—the real proving ground of industry. Under hard conditions, in continuous service, on all kinds of materials, this modern crusher is setting new records for high tonnages, low costs and better products.

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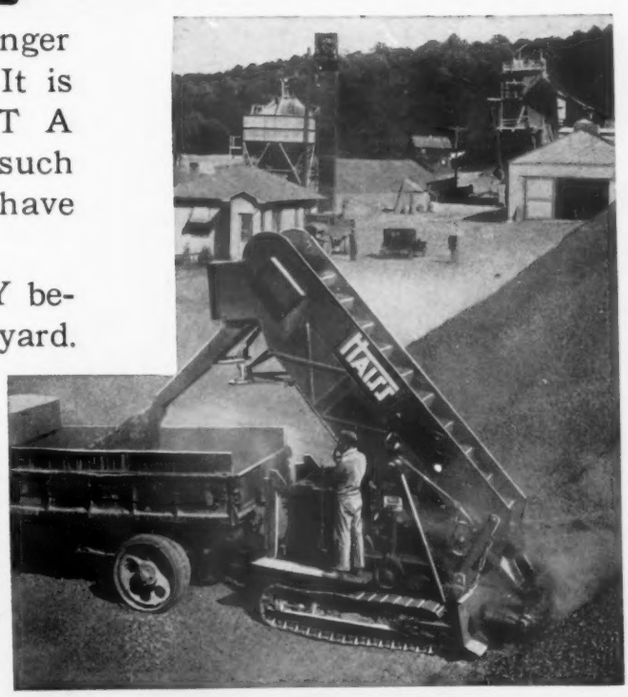
IT PAYS TO BUY HAISS QUALITY because you load at the lowest cost per cu. yard.




*Write for catalog and 1934 prices on the model that fits your need.*

**George Haiss Manufacturing Co., Inc.**
**142nd St. & Rider Ave., New York**

MODEL "135" 5 yds. per min.
MODEL "80" 3 yds. per min.
MODEL "27" 2 yds. per min.
MODEL "50" 1½ yds. per min.

# HAISS "Path Digging" LOADERS

ALSO: CLAMSHELL BUCKETS . . HOPPER GATES . . SCREENS . . ELEVATORS . . CONVEYORS & PARTS.

# Classified Buyers' Guide

A Directory of PIT AND QUARRY Advertisers Arranged According to Product

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*Bartlett & Snow Co., C. O.
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*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Fdry. & Mch. Co.
McLanahan and Stone Corp.

**Dust-Collecting Systems**
Allen-Sherman-Hoff Co.
*Allis-Chalmers Mfg. Co.
Raymond Bros. Impact Pulv. Co.

**Dust Handling Systems (Hydro Vacuum)**
Allen-Sherman-Hoff Co.

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*Allis-Chalmers Mfg. Co.
* General Electric Co.

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**Elevators** (See Conveyors and Elevators)

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*Allis-Chalmers Mfg. Co.
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McLanahan and Stone Corp.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.
Wellman Engr. Co.

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**Engines (Steam)**
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Haiss Mfg. Co., Geo.

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Atlas Powder Co.
*Hercules Powder Co.

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*Kennedy-Van Saun Mfg. and Eng. Corp.

**Feeders**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
*Link-Belt Co.
Morrow Mfg. Co.
*Robins Conveying Belt Co.
Smith Engr. Works
Sprout, Waldron & Co.

**Fencing (Woven Wire)**
*American Steel & Wire Co.
Buffalo Wire Works Co.

**Floor Sweeping Systems (Hydro Vacuum)**
Allen-Sherman-Hoff Co.

**Fuses (Detonating)**
Atlas Powder Co.
*Ensign-Bickford Co.
*Hercules Powder Co.

**Fuses (Electrical)**
*General Electric Co.

**Gaskets**
Goodyear Tire & Rubber Co.
Thermoid Rubber Co.

**Gasoline Engines** (See Engines—Internal-Combustion)

**Gas Producers**
Wellman Engr. Co.

**Gates (Bin)** (See Bin Gates)

**Gates (Clamshell)**
Haiss Mfg. Co., Geo.

**Generator Sets (Engine)**
*General Electric Co.

**Generator Sets (Motor)**
*General Electric Co.

**Generator Sets (Turbine)**
*General Electric Co.

**Gears (Herringbone)**
*Bartlett & Snow Co., C. O.
*General Electric Co.
*Link-Belt Co.
Sprout, Waldron & Co.

**Gears and Pinions**
*Bartlett & Snow Co., C. O.
*General Electric Co.
Haiss Mfg. Co., Geo.
*Link-Belt Co.
Pettibone Mulliken Co.
Sprout, Waldron & Co.

**Gelatin** (See Explosives)

**Generators** (See Motors and Generators)

**Glass Sand Equipment**
Lewistown Foundry & Machine Co.

**Goggles**
Pulmosan Safety Equipment Corp.

**Grab Buckets** (See Buckets—Clamshell, Orange - Peel, etc.)

**Grating (Steel)**
*Bartlett & Snow Co., C. O.
*Hendrick Mfg. Co.

**Grinding Balls** (See Balls, Grinding)

**Grizzlies**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
*Eagle Iron Works
*Hendrick Mfg. Co.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Fdy. & Mach. Co.
Pettibone Mulliken Co.
*Robins Conveying Belt Co.
Smith Engr. Works

**Guards (Wire)**
*Bartlett & Snow Co., C. O.
National Wire Cloth Co.

**Guns (Hydraulic)**
Hetherington & Berner, Inc.

**Hammer Mills** (See Crushers—Hammer)

**Haulage Systems (Electric)**
*General Electric Co.

**Hoists**
*Bartlett & Snow Co., C. O.
Hetherington & Berner, Inc.
Iowa Mfg. Co.
*Link-Belt Co.
McLanahan and Stone Corp.
*Sauerman Bros., Inc.
Smith Engr. Works
Sprout, Waldron & Co.

**Hoppers**
*Hendrick Mfg. Co.

**Hose (Air, Steam and Water)**
Goodyear Tire & Rubber Co.
Thermoid Rubber Co.

**Hose Couplings** (See Couplings)

**Hydraulic Guns** (See Guns—Hydraulic)

**Idlers**
Barber-Greene Co.
*Bartlett & Snow Co., C. O.
*Link-Belt Co.
*Robins Conveying Belt Co.
Smith Engr. Works
Sprout, Waldron & Co.

**Kilns and Coolers (Rotary)**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.

**Lights (Flood)**
*General Electric Co.

**Lime-Handling Equipment**
*Bartlett & Snow Co., C. O.
Iowa Mfg. Co.
*Link-Belt Co.
Raymond Bros. Impact Pulv. Co.
*Robins Conveying Belt Co.

**Lime Kilns**
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.

**Linings (Ball- and Tube-Mill)** (See Mill Liners and Linings)

**Loaders and Unloaders**
Barber-Greene Co.
*Bartlett & Snow Co., C. O.
Haiss Mfg. Co., Geo.
*Link-Belt Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

**Locomotives (Diesel)**
*Fate-Root-Heath Co.
*Plymouth Locomotive Works.

**Locomotives (Diesel-Electric)**
*Fate-Root-Heath Co.
* General Electric Co.
*Plymouth Locomotive Works.

**Locomotives (Electric, Gas and Steam)**
*Fate-Root-Heath Co.
*General Electric Co.
*Lima Locomotive Works
*Plymouth Locomotive Works.

**Locomotives (Gas Electric)**
*Fate-Root-Heath Co.
*Plymouth Locomotive Works.
*General Electric Co.

**Locomotives (Oil Electric)**
*Fate-Root-Heath Co.
*Plymouth Locomotive Works.
*General Electric Co.

**Locomotives (Storage Battery)**
*General Electric Co.

**Magnetic Pulleys** (See Pulleys, Magnetic)

**Manganese Steel**
Pettibone Mulliken Co.

**Measuring Devices (Electric)**
*General Electric Co.

**Mill Liners and Linings**
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.

**Mills (Grinding)** (See also Crushers—Hammer)
*Allis-Chalmers Mfg. Co.
*American Pulverizer Co.
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Fdy. & Mch. Co.
Raymond Bros. Impact Pulv. Co.
Sprout, Waldron & Co.

**Motor Trucks**
General Motors Truck Co.

**Motors and Generators**
*Allis-Chalmers Mfg. Co.
*General Electric Co.

**Motors (Internal-Combustion)** (See Engines — Internal-Combustion)

**Nails**
*American Steel & Wire Co.

**Netting (Locomotive Stack)**
Buffalo Wire Works Co.

**Nozzles (Hydraulic)** (See Guns—Hydraulic)

**Packings**
Goodyear Tire and Rubber Co.

**Partitions (Wire)**
Buffalo Wire Works Co.
National Wire Cloth Co.

**Perforated Metal Plates**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
Chicago Perforating Co.
*Hendrick Mfg. Co.
Morrow Mfg. Co.
Sprout, Waldron & Co.

**Pipe Flanges**
Hetherington & Berner, Inc.

**Plug Valves** (See Valves)

**Pneumatic Drills** (See Drills, Rock)

**Portable Conveyors**
Barber-Greene Co.
Haiss Mfg. Co., Geo.
Iowa Mfg. Co.
*Link-Belt Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

**Portable Crushing and Screening Plants**
Barber-Greene Co.
*Bartlett & Snow Co., C. O.
*Universal Crusher Co.

**Portable Engines** (See Engines—Internal Combustion)

**Portable Loaders** (See Loaders and Unloaders)

**Power Cables (Rubber Clad)**
*American Steel & Wire Co.

**Power Shovels** (See Shovels, Electric, Internal-Combustion and Steam)

**Pulleys (Magnetic)**
Sprout, Waldron & Co.

**Pulleys (Wing)**
Sprout, Waldron & Co.

**Pulverized Fuel Systems**
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Raymond Bros. Impact Pulv. Co.

**Pulverizers** (See also Crushers; Mills; etc.)
*American Pulverizer Co.
*Bartlett & Snow Co., C. O.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Foundry & Machinery Co.
Raymond Bros. Impact Pulv. Co.
*Universal Crusher Co.

**Pump Valves** (See Valves Pump)

**Pumps (Cement Slurry)**
Allen-Sherman-Hoff Co.
*Morris Machine Works

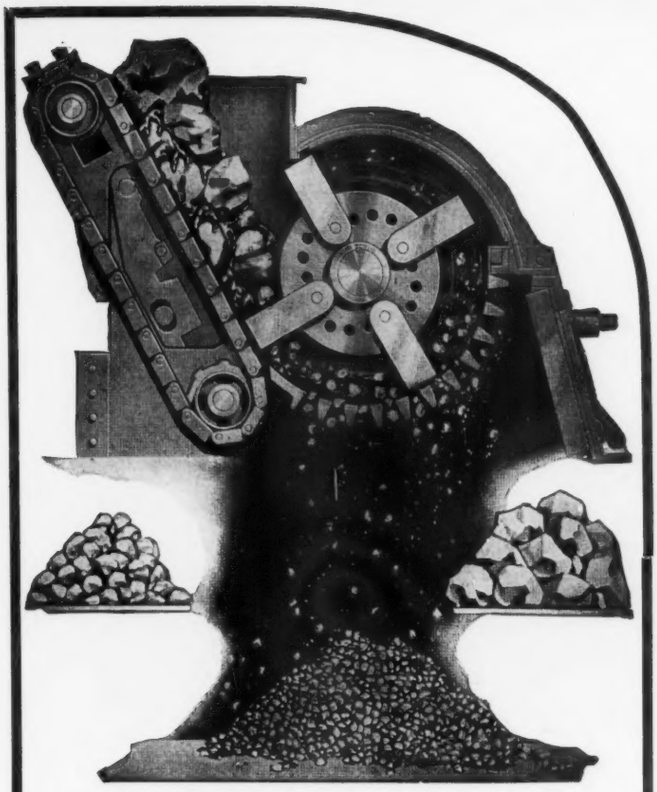
**Pumps (Centrifugal)**
Allen-Sherman-Hoff Co.
*Allis-Chalmers Mfg. Co.
Erie Pump & Engine Works
Hetherington & Berner, Inc.
*Morris Machine Works
Pettibone Mulliken Co.

**Pumps (Dredging)**
Allen-Sherman-Hoff Co.
*Allis-Chalmers Mfg. Co.
Erie Pump & Engine Works
Hetherington & Berner, Inc.
*Morris Machine Works
Pettibone Mulliken Co.

**Pumps (Sand and Gravel)**
Allen-Sherman-Hoff Co.
*Allis-Chalmers Mfg. Co.
Erie Pump & Engine Works
Hetherington & Berner, Inc.
*Morris Machine Works
Pettibone Mulliken Co.

**Ready-Mixed Concrete Plants**
*Bartlett & Snow Co., C. O.

*** See also information in the 1934 Pit and Quarry HANDBOOK.**



# SENSATIONAL

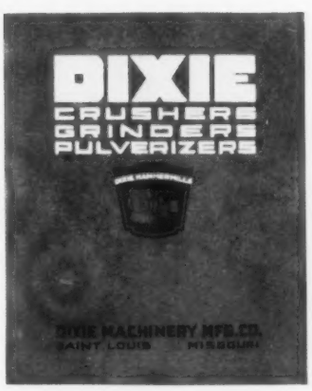
That's what they're saying about the non-stop records of the DIXIE MOGUL Non-Clog Hammermill on the toughest crushing jobs. It's an engineering achievement in simplicity of design and super-strength of construction. Think of a special moving breaker plate 26 times the average wearing area, and extra husky swing hammers of hardened alloy steel! Limestone, gypsum rock, iron ore and barytes all crumble like egg shells before its powerful crushing action. Soft, sticky materials never faze it. You are steering clear of mechanical troubles and heading straight for bigger profits when you get going with the Dixie Hammermill.

**DIXIE**

**MACHINERY MFG. CO.**

**4310 GOODFELLOW AVENUE, ST. LOUIS, MO.**

*Read these first-hand facts on modern crushing methods. Dixie is from Missouri, and this Catalog will show you what it's all about. Write for your copy today.*




# Make more miles with the Michigan

More miles mean more profits, because it is *high speed* that keeps *costs low* in handling materials on widely scattered government projects.

With the Michigan Truck Shovel, you can travel from job to job in a hurry—and do a half a day's work while the other fellow is getting set.

The Michigan is fast on the job, too! With FULL CIRCLE LOADING and FINGER TIP CONTROL, it gives the operator a "break" for easy maneuvering and quick working in close quarters.

On scores of jobs, the Michigan Truck Shovel is winning a reputation for being the "Fastest Road Cruiser of the Shovel Fleet."

Write today for prices and particulars.

New Bulletin sent on request, giving details of the speedy Michigan Truck Shovel.

FULL CIRCLE LOADING — THREE QUARTER DIGGING — NO TAIL SWING

The Michigan Truck Shovel is convertible into a Truck Crane by simply changing the boom.

# MICHIGAN

## POWER SHOVEL CO.

BENTON HARBOR, MICHIGAN

# Classified Buyers' Guide

A Directory of PIT AND QUARRY Advertisers Arranged According to Product

Index to Advertisers on Page 64

**Respirators**
Pulmosan Safety Equipment Corp.

**Rheostats**
*General Electric Co.

**Rock Drills** (See Drills—Rock)

**Rod Mills**
*Kennedy-Van Saun Mfg. and Eng. Corp.

**Rope (Wire)** (See Wire Rope)

**Safety Equipment**
Pulmosan Safety Equipment Corp.

**Sand Separators**
*Bartlett & Snow Co., C. O.
*Link-Belt Co.
McLanahan and Stone Corp.
Smith Engr. Works

**Sand-Settling Tanks**
*Bartlett & Snow Co., C. O.
Iowa Mfg. Co.
*Link-Belt Co.
Smith Engr. Works

**Scrapers (Power Drag)**
Iowa Mfg. Co.
*Link-Belt Co.
*Sauerman Bros., Inc.

**Screens**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
Buffalo Wire Works Co.
Chicago Perforating Co.
Deister Machine Co.
*Eagle Iron Works
Haiss Mfg. Co., Geo.
*Hendrick Mfg. Co.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Foundry & Machinery Co.
*Link-Belt Co.
McLanahan and Stone Corp.
Morrow Mfg. Co.
National Wire Cloth Co.
Productive Equip. Corp.
*Robins Conveying Belt Co.
Smith Engr. Works
Sprout, Waldron & Co.
*Universal Crusher Co.

**Screens (Vibrating or Shaking)**
*Allis-Chalmers Mfg. Co.
Barber-Greene Co.
*Bartlett & Snow Co., C. O.
Buffalo Wire Works Co.
Deister Machine Co.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Foundry & Machinery Co.
*Link-Belt Co.
McLanahan and Stone Corp.
Productive Equip. Corp.
*Robins Conveying Belt Co.
Smith Engr. Works
Sprout, Waldron & Co.
*Universal Crusher Co.

**Separators (Air)** (See Air Separators)

**Sheaves**
*Allis-Chalmers Mfg. Co.
*Eagle Iron Works
Haiss Mfg. Co., Geo.
Hetherington & Berner, Inc.
*Link-Belt Co.
McLanahan and Stone Corp.
Pettibone Mulliken Co.
Sprout, Waldron & Co.

**Shovels (Electric, Internal Combustion and Steam)**
*Link-Belt Co.
*Michigan Power Shovel Co.
Ohio Power Shovel Co.

**Skip Hoists and Skips**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
Hetherington & Berner, Inc.
*Link-Belt Co.
*Robins Conveying Belt Co.

**Speed Reduction Units**
*General Electric Co.
Iowa Mfg. Co.
*Link-Belt Co.

**Spouts** (See Chutes and Chute Liners)

**Sprockets and Chain**
*Bartlett & Snow Co., C. O.
Iowa Mfg. Co.
*Link-Belt Co.
Pettibone Mulliken Co.
Sprout, Waldron & Co.

**Starters (Automatic, Motor)**
*General Electric Co.

**Steel Grating** (See Grating, Steel)

**Steel Inclines** (See Inclines, Steel)

**Steel Plate Construction**
*Hendrick Mfg. Co.
Hetherington & Berner, Inc.
Sprout, Waldron & Co.

**Storage Equipment**
*Bartlett & Snow Co., C. O.
Haiss Mfg. Co., Geo.
*Link-Belt Co.
*Sauerman Bros., Inc.

**Sweeping Systems**
Allen-Sherman-Hoff Co.

**Switchboards (Electric)**
*General Electric Co.

**Switches (Safety)**
*General Electric Co.

**Tanks**
*Bartlett & Snow Co., C. O.
*Hendrick Mfg. Co.

**Tanks (Sand-Settling)**
*Bartlett & Snow Co., C. O.
Iowa Mfg. Co.
*Link-Belt Co.
Morrow Mfg. Co.
Smith Engr. Works

**Tires (Truck)**
Goodyear Tire & Rubber Co.

**Tools (Drill)** (See Drilling Accessories)

**Track Equipment**
Pettibone Mulliken Co.

**Tractors**
*Allis-Chalmers Mfg. Co.

**Trailers**
General Motors Truck Co.

**Tramways (Aerial)**
*American Steel & Wire Co.

**Transformers**
*Allis-Chalmers Mfg. Co.
*General Electric Co.

**Transmission Belting** (See Belting)

**Transmission Machinery**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
*Gruendler Crusher & Pulv. Co.
*Link-Belt Co.

**Trippers**
*Bartlett & Snow Co., C. O.
Good Roads Machy. Corp.
*Link-Belt Co.
*Robins Conveying Belt Co.

**Truck Cranes** (See Cranes)

**Truck Mixers**
*Bartlett & Snow Co., C. O.

**Trucks and Trailers** (See Motor Trucks)

**Tube-Mills** (See Mills—Ball, Tube, etc.)

**Underground Loaders**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.

**Unloaders (Box Car)**
Barber-Greene Co.
*Bartlett & Snow Co., C. O.
*Link-Belt Co.

**Unit Heaters**
*General Electric Co.

**Variable Speed Reducers or Transmissions**
*Link-Belt Co.

**Vibrating Screen Plate**
*Bartlett & Snow Co., C. O.
Chicago Perforating Co.
*Hendrick Mfg. Co.
Morrow Mfg. Co.

**Vibrating Screens** (See Screens—Vibrating)

**Washers (Sand, Gravel and Stone)**
*Allis-Chalmers Mfg. Co.
*Bartlett & Snow Co., C. O.
*Eagle Iron Works
Haiss Mfg. Co., Geo.
Iowa Mfg. Co.
*Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Foundry & Machinery Co.
*Link-Belt Co.
McLanahan and Stone Corp.
Smith Engr. Works

**Welding and Cutting Equipment**
*General Electric Co.

**Welding Supplies**
*American Steel & Wire Co.
*General Electric Co.

**Well Drills** (See Drills—Well)

**Wheels (Car)**
*Eagle Iron Works
Iowa Mfg. Co.
Pettibone Mulliken Co.

**Winches and Capstans**
*Bartlett & Snow Co., C. O
*Link-Belt Co.
*Robins Conveying Belt Co.
Sprout, Waldron & Co.

**Wire & Cable (Electric)**
*American Steel & Wire Co.
*General Electric Co.

**Wire Cloth**
Buffalo Wire Works Co.
National Wire Cloth Co.
*Robins Conveying Belt Co.

**Wire Rope**
*American Steel & Wire Co.
Buffalo Wire Works Co.
Williamsport Wire Rope Co.

**Wire-Rope Fittings**
*American Steel & Wire Co.
Buffalo Wire Works Co.
Williamsport Wire Rope Co.

**Wire Rope Slings**
*American Steel & Wire Co.
Williamsport Wire Rope Co.

**Wire (Welding)**
*American Steel & Wire Co.

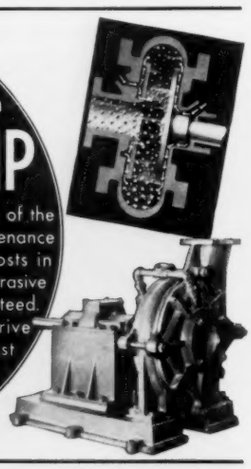
**Worm Gears** (See Gears and Pinions)

*** See also information in the 1934 Pit and Quarry HANDBOOK.**


HYDROSEAL DREDGE PUMP

Unique principle of hydrosealing both sides of the impeller against abrasive wear, cuts maintenance to a fraction and saves ⅓ in power costs in pumping sand, gravel, rock and other abrasive materials—Estimated economies guaranteed. Sizes 2" to 22", pulley or motor drive. Descriptive Catalog sent on request.

ALLEN-SHERMAN-HOFF CO.
223 South Fifteenth Street
Philadelphia, Pa.



Lewistown Foundry Products
ARE
Performance-Tested

BUCKET ELEVATORS
REVOLVING SCREENS
CRUSHERS DRY PANS

Lewistown Foundry & Machine Co.
Lewistown, Pa.

# HENDRICK
## PERFORATED METALS

are popular in the quarry fields. They wear well. Full range of sizes

**Heat-Treated Double-Corrugated Plates**

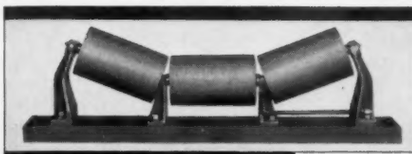
with square, round and "Sqround" perforations. Write for data, particularly on the new "Sqround" Mesh.

Investigate the Weston Testing Screen for making sizing tests.

**HENDRICK MANUFACTURING CO.** Carbondale, Pa.

Baltimore Birmingham Boston Cincinnati Cleveland
Detroit Hazleton New York Philadelphia Pittsburgh

# BELT CONVEYOR IDLERS



CRUSHERS
ROTARY SCREENS
DRYERS
SKIP HOISTS
ELEVATORS
CONVEYORS

● Equipped with Timken bearings and factory tested so that they are ready for immediate field service, B&S belt conveyor idlers give maximum performance. . . . They are easily lubricated. Standard sizes of flat and troughed design carried in stock for your convenience. Full details on request.

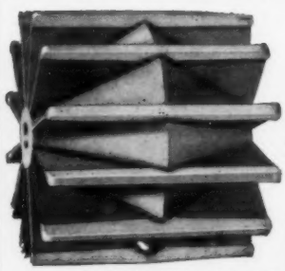
**THE C. O. BARTLETT & SNOW CO.**
6194 HARVARD AVENUE • CLEVELAND, OHIO

# EAGLE
## EQUIPMENT

Spiral Screw and Log Washers, De-Waterers and Shale Removers, Flume Classifiers, Swintek Ladder Suction Screen Nozzles, Chain Type Cutters, Barges and Pontoons, A Frame and Gantry Hardware, Vibrating and Revolving Screens, Steel Dump Cars, Grizzlies, Car Wheels and Trucks, Steel Bins, Water Tanks, Structural Towers, and Dry Pans.

**EAGLE IRON WORKS**
*Machinists — Founders*
DES MOINES, IOWA

# SAVE YOUR CONVEYOR
## and Elevator Belts *with* SPROUT-WALDRON Wing Pulleys



Interchangeable with standard pulleys. Nothing can lodge between belt and pulley.

**SPROUT, WALDRON & CO. INC.**
1221 SHERMAN ST., MUNCY, PA.
**Elevating, Conveying and Transmission Equipment**

# CORDEAU *is an insensitive* DETONATOR

Cordeau is a lead-encased core of TNT, insensitive, and must be detonated by a fuse cap or E-B cap. When so detonated it carries an explosive wave at a speed of approximately three miles per second; practically instantaneous, yet permitting the blast to be so planned as to relieve burden through successive detonations.

The proper use of Cordeau has been found to result in more work from the explosives. The line of Cordeau, extending from the bottom to the top of each hole, detonates every cartridge in each load. Thus each cartridge is, in effect, a *primer* cartridge, having *added* force—doing more work.

The use of Cordeau simplifies loading, permits giant hook-ups, reduces misfires—results in more efficient blasting. Perhaps you can use it to advantage in *more* of your blasting.

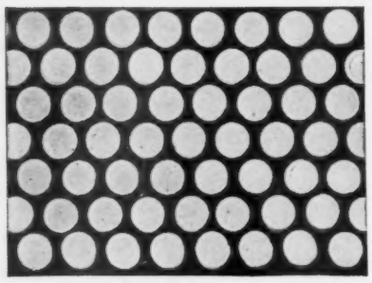
**The ENSIGN-BICKFORD CO.**
Simsbury Connecticut

CB31

This book explains Cordeau-Bickford Detonating Fuse and shows how it can be used profitably. Sent free to executives.

CORDEAU
DETONATING FUSE
BICKFORD

# MORROW SCREEN PLATES



MORROW PERFORATED METAL SCREEN PLATES for sizing and preparing coal, sand, gravel, stone and other bulk materials are made by a Company specializing in screening machinery.

A complete set of punches and dies covering a wide range of sizes, in round, square, oval and diagonal slots are ready for the press, insuring prompt delivery of orders.

*Prices are right.*
*Send for Bulletin 57.*

The Morrow Manufacturing Co.
Wellston, Ohio

*The New* **PULMOSAN DUST RESPIRATOR** *"M Type"*

## A Respirator that workers WILL wear!

**Here is highly effective protection for workers exposed to lead, silica and similar dusts, and paint spray mists . . . PLUS a breathing ease and wearing comfort unmatched by any respirator. This means that workers will gladly wear a respirator . . . and their efficiency will not be lowered.**

Many exclusive features and improvements in the new "M" type Pulmosan Dust Respirators also assure longer wear, greater utility and lower cost in service. If your plant conditions indicate the need for respirators, by all means learn more about these Improved Pulmosan respirators. Write for descriptive bulletin.

**PULMOSAN SAFETY EQUIPMENT CORP.**
***Dept. P*** **176 Johnson St., Brooklyn, N. Y.**

# PIT AND QUARRY

***Research Department***

**538 South Clark St., Chicago, Ill.**

***Please send me catalogs and prices concerning the following items checked below:***

- ☐Agitators, sand and Gravel
- ☐Agitators, Slurry
- ☐Air cleaners
- ☐Air compressors
- ☐Bag filling and weighing machinery
- ☐Bags, cloth
- ☐Bags, paper
- ☐Balls, steel
- ☐Barges, steel
- ☐Belt dressing
- ☐Belt fasteners
- ☐Belting, conveyor and elevator
- ☐Belting, transmission
- ☐Belt lacing
- ☐Belt plates
- ☐Belt rivets
- ☐Belt tighteners
- ☐Bin gates
- ☐Bins, concrete
- ☐Bins, steel
- ☐Blasting supplies
- ☐Blasting powder
- ☐Blocks, friction
- ☐Boats, self-unloading
- ☐Bodies, Motor Trucks
- ☐Brake Linings
- ☐Buckets, Clamshell
- ☐Buckets, Conveyor and Elevator
- ☐Buckets, Dragline
- ☐Buckets, Orange Peel
- ☐Cableways, Slackline
- ☐Calcining Machinery
- ☐Car Dumpers
- ☐Car Pullers and Movers
- ☐Carriers, Belt
- ☐Cars, Dump
- ☐Cars, Kiln
- ☐Castings, Manganese Steel
- ☐Castings, Steel
- ☐Chains, Conveyor and Elevator
- ☐Chains, Power Shovel, Crane and Dredge
- ☐Chains, Transmission
- ☐Chutes
- ☐Classifiers
- ☐Clips, Wire Rope
- ☐Clutches
- ☐Clutches, Magnetic
- ☐Concrete Plants, Ready Mixed
- ☐Cones, Washing
- ☐Conveyors, Apron
- ☐Conveyors, Belt
- ☐Conveyors, Pneumatic
- ☐Conveyors, Screw
- ☐Conveyors, Skip
- ☐Coolers
- ☐Couplings, Flexible
- ☐Couplings, Hose
- ☐Cranes, Locomotive
- ☐Cranes, Overhead Traveling
- ☐Cranes, Truck
- ☐Crushers, Cone
- ☐Crushers, Disc
- ☐Crushers, Gyratory
- ☐Crushers, Hammer
- ☐Crushers, Jaw
- ☐Crushers, Ring
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- ☐Crushers, Rotary
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- ☐Derricks
- ☐Draglines, Cableway
- ☐Draglines, Revolving Boom
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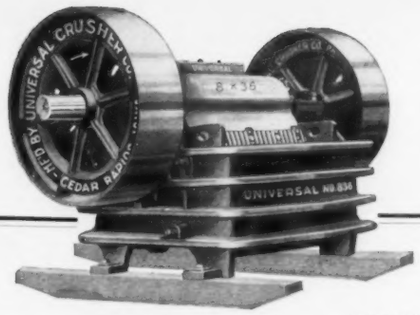


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CRUSHER
Fine aggregates in
one operation

# "Big Shot" Crushers

—that is what the field men call them. They are UNIVERSAL Crushers to you—tough enough to "take it" and fast enough to "make good" on the biggest rush job.

Stationary or portable, they meet every requirement in today's stiff specifications for a uniform grade of material at low cost. Reducing aggregates to size in one operation—as UNIVERSALS do—is the cheapest and quickest method.

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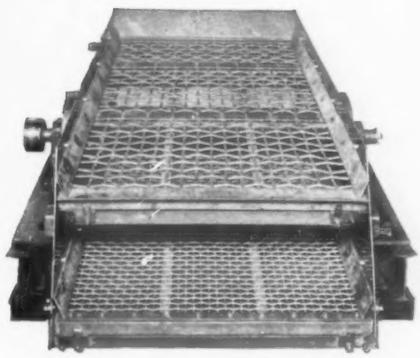
## UNIVERSAL CRUSHER COMPANY

619-C Avenue West, Cedar Rapids, Iowa

Typical UNIVERSAL Unit Plant in action.
Always easy to move and ready to go.

# ROK-TEX

## 50% to 200% longer screen life



Mechanical Screen with "Buffalo" Wire ROK-TEX installed complete.

YOU need only watch ROK-TEX on the job under the most gruelling service to see why it has a reputation for economy. It keeps "going strong" long after ordinary screens have "passed out" of commission. In screening sharp stone—the acid test for wire cloth—it shows from 50% to 200% longer screen life according to actual reports from users.

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The square mesh of ROK-TEX is correct in principle and efficient in practice. In screening sand, gravel or stone, it gives full capacity, insures accurate sizing, and eliminates uneven wear—vastly superior to the round (punched) type of screen in greater output and lower upkeep.

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INCORPORATED
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ROK-TEX

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SHOVELS-CRANES-CLAMSHELLS-DRAGLINES

3-4 yd., 1 yd., 1 1-4 yd., 1 1-2 yd., & 1 3-4 yd.

(A TYPE AND SIZE FOR EVERY JOB)

The Ohio Power Shovel Company

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CENTRIFUGAL PUMPS

For hydraulic dredging, filling, sand and gravel production; hydraulic conveying of slurry and other liquids containing abrasive materials; clear water pumps for general service.

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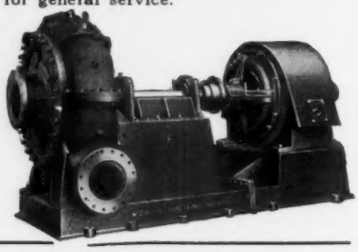

Write for Bulletins

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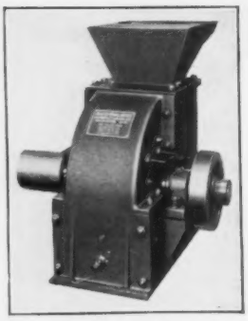
Baldwinsville, N. Y.

*Export Office: 50 Church St., New York.*



# Pulverators

The Allis-Chalmers Pulverator is an impact crusher used for pulverizing friable non-siliceous materials. It is built in four sizes with from 4 to 24 hammers. Write for Bulletin 1467.

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**Longer Range — Larger Capacity — Lower Cost per Cubic Yard Handled**

SAUERMAN SLACKLINE SCRAPER

This machine is in a class by itself for mining large deposits.

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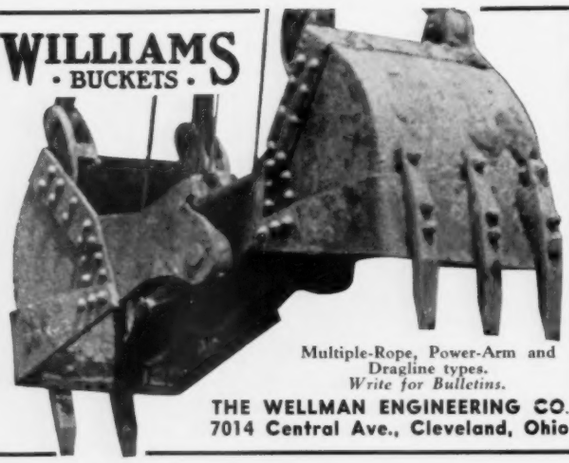

Multiple-Rope, Power-Arm and Dragline types.

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**CRUSHERS**—Double roll and Sledge Wedge Crushers, for practically any product. Capacities to 1000 tons an hour.

**SUPER DRY PANS**—For especially large tonnages.

**WASHERS AND SCRUBBERS**—Steel log Washers; scrubbers, cylinder washers, sand drags and washing screens.

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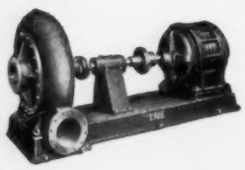

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**Perforated Metals — Screens of All Kinds — For Sand, Gravel, Stone, Etc.**

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PROMPT SHIPMENT

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**Consider an important ingredient —ammonium nitrate. A high degree of purity is necessary, but proper size and type of grains also are essential. Research, manufacturing experience, and field tests enable us to determine the correct size to use in various grades of dynamite. This is typical of the care taken to assure quality and uniformity in Hercules explosives.**

*HERCULES POWDER COMPANY*
INCORPORATED
960 King Street, Wilmington, Delaware

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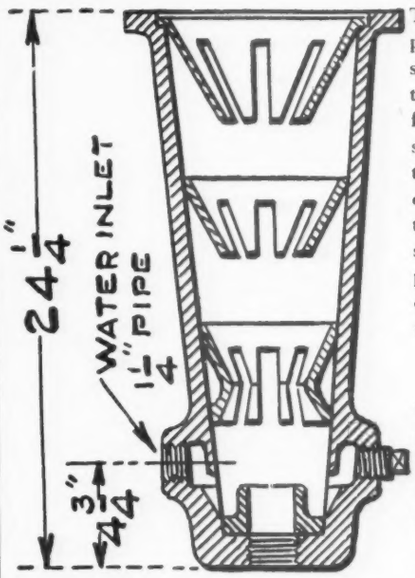
## NEW COMPOUND FUNNEL CLASSIFIER

WRITE FOR BULLETIN NO. 23, FULL DETAILS




THE Deister Compound Funnel Classifier is an important development for the hydraulic sizing of fine material, and also for cleaning sand by the elimination of silt and other impurities. Simple, effective and economical.

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Other Deister products described in Bulletin No. 22, including the Improved PLAT-O Vibrating Screen. Ask for copy.

DEISTER MACHINE COMPANY
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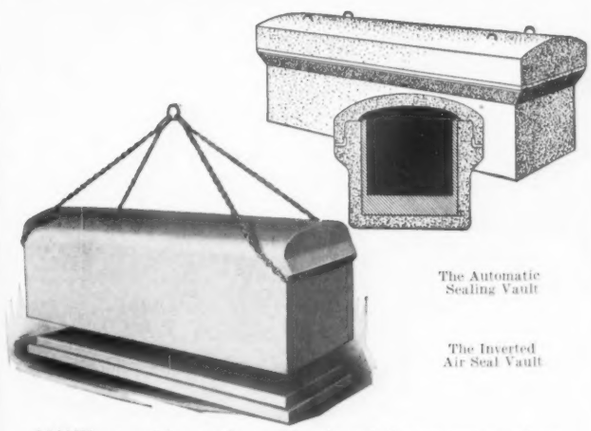
## Sideline becomes principal business



The Automatic Sealing Vault

The Inverted Air Seal Vault

MANY enterprising sand, gravel and crushed stone operators have become vault manufacturers—with big profits to themselves—by building and selling "Automatic Sealing Vaults" according to our proven plan of merchandising.
Your only investment is for a set of molds, which costs little and makes all sizes. No royalties or commissions. Exclusive territory protects you from competition. It is easy to start in a small way during dull seasons, and build up a far more profitable business than just producing the raw material.

Be the first to take advantage of this opportunity in your district. Write today for free Booklet that explains this new plan in detail.

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*Canadian Representative*
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Ridgeville, Ontario, Canada

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**Complete Crushing Plants; Diesel, Gasoline, Electric Cranes and Shovels; Hoists; Compressors; Pumps; Dragline and Excavating Equipment; and all sizes and types of Jaw, Gyratory and Roll Crushers; Swing Hammer Mills; Elevators; Belt Conveyors; Rotary and Vibrating Screens; Rotary Kilns and Dryers; Raymond and other fine Pulverizers; Air Separators; Hardinge Ball and Pebble Mills; Silex and Iron lined Tube Mills, etc.**

**Send for Bulletin No. 15.**

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We
- Sell
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MOTORS
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TRANSFORMERS
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Always Dependable
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Money-Back Guarantee

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30″ Gates Gyratory Crusher AC Motor.
16″ Telsmith Gyratory Crusher.
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42x60, 24x36, 11x36, 10x20 Jaw Crushers.
2′, 3′, 4′, 5½′ Symons Cone Crushers.
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No. 0 Bartlett & Snow Cyclo Pulverizer.
36″ & 48″ American Ring Pulverizers.
5′x11′ Marcy Rod Mill; 5′x6′ Ball Mill.
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7—50-B Bucyrus Shovels and Draglines.
2—78-C Bucyrus Steam Shovels, Cats.
2—100-B Bucyrus Steam Shovels, Cats.
20, 25, 32, 40, 50, 60 Ton Steam and Gas Locomotives.
99—5, 8, 12, 20, 30 Yd. Std. Ga. Dump Cars.
75 KVA Westinghouse 3Ph 60cy Generator.
⅛, ½, ¾, 1, 1¼, 1½, 2, 2½, 3, 4, 5 Yd. Clam Shell, Orange Peel & Dragline Buckets.
50, 75, 100, 150, 200, 300, 400 HP AC Motors.
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35, 60, 75, 150, 300 HP Scotch Boilers, ASME.
25 to 1250 HP Diesel Engines.
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10, 15 and 20 Ton All Steel Stiff-leg Derricks.
24″x475′ Belt Conveyor-Steel Frame, etc.
24″x60′, 24″x30′, 18″x42′ Portable Conveyors.
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**All Phones—ANDover 4478**

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64-ton Porter 6-wheel saddle tank.
50-ton American 4-wheel saddle tank.
40-ton American 4-wheel saddle tank. (2 duplicates.)
36-ton Porter 4-wheel saddle tank. (2 duplicates.)
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BIRMINGHAM, ALABAMA

**MOTORS—**

| 3 PH., 60 CY. Hp. | Type | Speed |
|---|---|---|
| 800 | G. E. sl. rg. | 720 |
| 600 | G. E. syn. | 860 |
| 2–600 | G. E. sl. rg. | 252 |
| 600 | G. E. syn. | 257 |
| 600 | Al. Ch. syn. | 240 |
| 3–675 | Al. Ch. syn. | 900 |
| 400 | West. sl. rg. | 514 |
| 400 | Al. Ch. syn. | 300 |
| 300 | Al. Ch. sl. rg. | 585 |
| 260 | Al. Ch. syn. | 720 |
| 250 | West. sl. rg. | 720 |
| 200 | G. E. sl. rg. | 1200 |
| 200 | West. sl. rg. | 500 |
| 200 | F. M. sl. rg. | 600 |
| 150 | G. E. sl. rg. | 1750 |
| 150 | G. E. sq. c. | 1750 |
| 100 | Cr. Wh. syn. | 225 |

**ENGINE GENER.**
1–400 kva., Cr. Wh., 240 v., 3 ph., 60 cy., 120 r.p.m. to Hamilton Corliss Engine.

**MOTOR GENER.**
1–750 kw. G. E. MPC., 250 v., D.C. Gener. to 1100 hp. G. E., ATI, synch. motor, 2200-3-60-900 r.p.m.

**CENTRIF. PUMPS**
3–14,000 G.P.M., 150′ Head dir. conn., 675 hp. Al. Ch. 900 r.p.m. syn. motors.
1–14,000 G.P.M., 60′ Hd., dir. conn. 260 hp., Al. Ch. 720 r.p.m.

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153 W. 18TH ST., NEW YORK CITY
REBUILT GUARANTEED

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JAW CRUSHERS—4″x8″-7″x11″-8″x14″-9″x15″-10″x16″-6″x20″-11″x22″-12″x24″-13″x30″-15″x30″-18″x30″-18″x36″-20″x50″-23″x36″-30″x30″-26″x42″-36″x48″-42″x60″-42″x48″.
Crushing Rolls—16″x10″ up to 54″x64″.
Gyratory Crushers—From No. 3 up to 42″.
No. 0-No. 1 and No. 1½ ring roll mill.
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Swing hammer mills.
3′x25′-4′x30′-5′x30′-5½′x40′ direct heat rotary dryers.
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Rotary cement kilns from 3′ to 9′ diameter.
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**SLIP RING MOTORS**
50 HP, 1800 RPM, 3/60/220 Louis-Allis.
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50 HP, 720 RPM, 3/60/220 General Electric.
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25 KVA, 1800 RPM, 3/60/2300 Fairbanks-Morse.
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**OIL ENGINE**
100 HP, 250 RPM, Bessemer semi-diesel complete.

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1000 GPM, 470′ head Alberger turbine 2 stage.
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300 Amp. 1750 RPM, Wilson—belted type.

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**Several Jaw Crushers.**
**Gas and Electric Motors, 1 HP to 200 HP.**
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Erie ¾ Yd. Steam Shovel on Cats.
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5″ High Pressure Pump.
30 & 60 Caterpillar Tractors.
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2 Late Type Jordan Air Operated Spreaders.
1 Std. Ga. Nordberg Track Shifter.
175 Bucyrus Shovel, 5 Yd. Dipper.
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# COURT SALE OF PROPERTIES
*of*
# CONSUMERS MATERIAL CORPORATION
## (Kansas City, Missouri)

A public sale at auction (without warranty or representations of any sort) of the properties of Consumers Material Corporation of Kansas City, Missouri, in receivership, is to be had June 22, 1934, at the County Court House in Independence, Missouri. The sale will be held pursuant to decree of the United States District Court at Kansas City entered May 19, 1934.

The Company has been engaged in the general crushed stone business, its main properties having been since January, 1930, actively operated by Stewart Sand and Material Company under a lease arrangement. The properties in general consist of:

A well equipped plant in active operation for tunnel mining, crushing, screening and loading of rock products including appropriate machinery, equipment and facilities, located on a branch of the Missouri Pacific Railway one-half mile east of Independence, Jackson County, Missouri, together with approximately 53 acres of land largely undermined and certain recently acquired rock deposits in adjoining lands.

A plant adequately equipped but not now in operation at Birmingham, Clay County, Missouri, located on or near the rights of way of the C. M. St. P. & P., Burlington, Wabash and Rock Island Railways, together with approximately 60 acres of leasehold land with rock mining rights.

A plant partly dismantled and not now in operation at McDowell Station near Smithville, Clay County, Missouri, with approximately 35 acres of land.

A plant largely dismantled and not now in operation near Gallatin in Daviess County, Missouri, with approximately 44 acres of land.

An assortment of machinery and equipment, including especially numerous motors.

The properties will be offered in parcel lots and groups and as a whole. A detailed description of the properties together with the terms of sale may be had on application to the Special Master, Albert L. Reeves, Jr., 906 Commerce Building, Kansas City, Missouri, or may be had by referring to the official notice of the sale being published in "The Examiner" of Independence, Missouri, in its issues of May 24, May 31, June 7, and June 14, 1934. Inspection of the properties may be had by arrangement with the Special Master or with the President of Stewart Sand and Material Company in Kansas City, Missouri.

**ALBERT L. REEVES, Jr., Special Master**

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1—Browning ⅝ yd. shovel with 35' crane boom.
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1—Keystone one yard Skimmer.
1—Browning 7½ ton Truck Crane.
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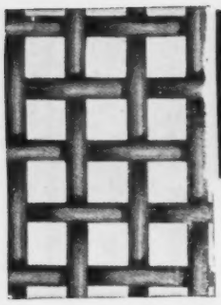

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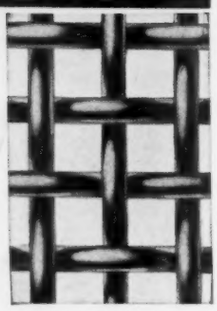

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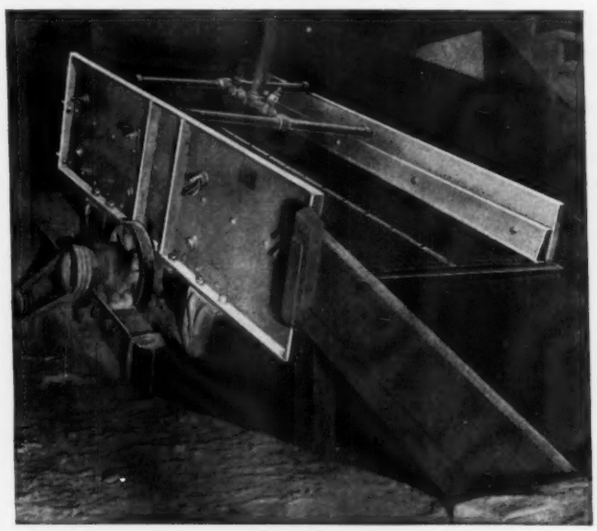

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